



CHEMISTRY

JEE (MAIN AND ADVANCED) CHEMISTRY

POLYMERS

Level I Exercise I

1. Which is an example of thermo setting polymer

- A. Polythene
- B. PVC
- C. Neoprene
- D. Bakelite

Answer: A



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2. Which of the following is a chain growth polymer

- A. Nucleic acid
- B. Polystyrene
- C. Protein
- D. Styrene

Answer: B



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3. Which of the following is incorrect

- A. Polyethylene contains double bonds
- B. The monomer used to make teflon is C_2F_4
- C. Condensation polymers are also known as step growth polymers.

D. A denatured protein could have the same primary structure as the active protein

Answer: A



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4. A co polymer is one in which

- A. Two monomers undergo condensation
- B. there is excessive cross linking
- C. extensive hydrogen bonding
- D. repeating unit contains two different monomers

Answer: D



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5. Natural polymer among the following is

- A. Cellulose
- B. PVC
- C. Teflon
- D. Polyethylene

Answer: A



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6. Inorganic polymer among the following is

- A. Rayon
- B. Starch
- C. Silicone rubber
- D. Natural rubber

Answer: C



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7. Thermoplastic polymer among the following is

- A. Bakelite
- B. Urea formaldehyde resin
- C. Polysiloxanes
- D. PVC

Answer: D



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8. Polymerization of iso butene is mostly initiated by

- A. a cation

- B. an anion
- C. a free radical
- D. Zwitter ion

Answer: A



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9. In which one of the following type of polymerization generally no initiator is required

- A. Cationic polymerization
- B. Anionic polymerization
- C. Free radical polymerization
- D. Condensation polymerization

Answer: D



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10. Statement - I In cross linked polymer strong covalent bonds are observed between various linear polymer chains.

Statement II : $Cl - \begin{array}{c} CH_3 \\ | \\ Si \\ | \\ CH_3 \end{array} - Cl$ on hydrolysis gives $OH - \begin{array}{c} CH_3 \\ | \\ Si \\ | \\ CH_3 \end{array} - OH$ and

on slight heating it forms condensation polymer. (silicones)

Statement III : All linear polymers are elastomers.

Statement IV : Neoprene on heating in the presence of very small amounts of oxygen gives polymer of neoprene.

The correct statement is/are

A. I, II, IV only

B. I, III, IV only

C. I only

D. All

Answer: A



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11. Terylene is

- A. An addition polymer with a benzene ring in every repeating unit
- B. A condensation polymer with benzene ring in every repeating unit
- C. An addition polymer with two carbon atoms in every repeating unit
- D. A condensation polymer with two nitrogen atoms in every repeating unit

Answer: B



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12. Monomers are converted to polymers by

- A. Hydrolysis of monomers
- B. Condensation reaction between monomers
- C. Protonation of monomers

D. None of these

Answer: B



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13. Which of the following is an example of condensation polymer (or)

Which of the following is not an example of addition polymer

A. Polyethene

B. PVC

C. Orlon

D. Terylene

Answer: D



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14. Which among the following is a semi synthetic polymer.

- A. Cellulose rayon
- B. Acrylonitrile
- C. Cellulose nitrate
- D. Both (1) & (3)

Answer: D



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15. Linear polymer among the following is

- A. Melamine
- B. Starch
- C. Bakelite
- D. Polyvinylchloride

Answer: D



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16. Which among the following is a branched chain polymer.

A. LDPE

B. Phenol formaldehyde resin

C. Nylon

D. Terylene

Answer: A



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17. Cross linked polymer among the following is

A. Polythene

B. LDPE

C. Melamine formaldehyde resin

D. Nylon 6,6

Answer: C



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18. Elastomers among the following are

A. Buna-N

B. Buna -S

C. Neoprene

D. All

Answer: D



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19. Identify the one which does not belong to the same class as other three

A. Terylene

B. Polythene

C. Teflon

D. PVC

Answer: A



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20. Correct statement among the following is

A. All macromolecules are polymers

B. Physical and mechanical properties of a polymer are similar to its monomer

C. Majority of bonds in polymer molecule are covalent

D. Vitamins are polymers

Answer: C



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21. Which of the following is fully fluorinated polymer

A. Neoprene

B. Teflon

C. Thiokol

D. PVC

Answer: B



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22. In the polymerization of acrylonitrile, most commonly used initiator is

- A. a cation
- B. an anion
- C. a free radical
- D. Zwitter ion

Answer: B



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23. Initiators that can be used in anionic polymerisation is/are

(a) Potassium amide (b) n-butyl lithium (c) $AlCl_3$ (d) H_2SO_4

The correct answer is

- A. only a
- B. only a and b
- C. only c and d
- D. all

Answer: B



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24. Initiators that can be used in cationic polymerization is/are

(a) KNH_2 (b) H_2SO_4

(c) BF_3 with little amount of H_2O (d) t-butyl peroxide

The correct answer is

A. All are correct

B. only a

C. only b and c

D. only a and d

Answer: C



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25. Which one of the following types of monomers, mostly undergo cationic polymerization

- A. Vinyl monomers with electron donating group
- B. Vinyl monomers with electron withdrawing group
- C. Poly functional group monomers
- D. Saturated hydrocarbons

Answer: A



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26. Terylene and nylon -6,6 are

- A. Random co-polymers
- B. Alternating co-polymers
- C. Block copolymers
- D. Graft copolymers

Answer: B



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27. In Elastar, intermolecular force are

- A. Nil
- B. Weak
- C. Strong
- D. Very strong

Answer: B



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28. Polyethylene is

- A. Random copolymers

- B. Homopolymer
- C. Alternate copolymer
- D. Cross linked copolymer

Answer: B



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29. Natural rubber is which type of polymer

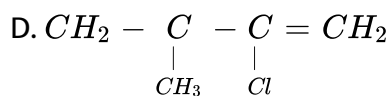
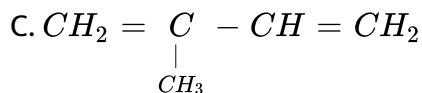
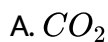
- A. Condensation polymer
- B. Addition polymer
- C. Coordinate polymer
- D. None of these

Answer: B



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30. Heating rubber to high temperature in the absence of air or O_2 gives



Answer: C



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31. The percentage of rubber in rubber latex is

A. 20 %

B. 25 %

C. 35 %

D. 65 %

Answer: C



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32. Natural rubber is a

- A. Polydiyne
- B. Polyamide
- C. Polyester
- D. Polyene

Answer: D



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33. Rubber latex is

- A. Emulsion of polyhydrocarbon droplets in an aqueous solution

B. Milk white suspension of crude rubber in CCl_4

C. True solution of crude rubber in water

D. True solution of crude rubber in alcohol

Answer: A



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34. Hutta percha is

A. Cis-1,4-polyisoprene

B. Trans - 1,2-polyisoprene

C. Cis-1,2-polyisoprene

D. Trans-1,4-polyisoprene

Answer: D



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35. A non-elastic, hard material known as ebonite is formed when crude rubber is heated with

- A. 5% of sulphur
- B. 20% of sulphur
- C. 30% of sulphur
- D. 40-50% of sulphur

Answer: D



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36. The process involving heating of rubber with sulphur is called

- A. Galvanisation
- B. Vulcanisation
- C. Bessenmerisation
- D. Sulphonation

Answer: B



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37. Ebonite is

- A. Natural rubber
- B. Synthetic rubber
- C. Highly vulcanised rubber
- D. Poly propene

Answer: C



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38. Natural rubber is a polymer of (or) the monomer of natural polymer rubber is

A. Butadiene

B. Ethylene

C. Isoprene

D. Styrene

Answer: C



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39. The role of zinc stearate in the process of vulcanisation is

A. to accelerate the process

B. to slow down the process

C. to stop the process

D. to initiate the process

Answer: A



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40. The vulcanized rubber has

- A. high water absorbing tendency
- B. low elasticity
- C. high sensitivity to heat treatment
- D. high resistance to chemical oxidation

Answer: D



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41. Natural rubber is

- A. Trans isomer
- B. cis isomer
- C. contains equal amounts of cis and trans isomers

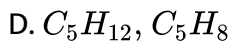
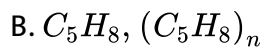
D. racemic mixture

Answer: C



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42. Empirical formula and molecular formula of monomer of natural rubber are respectively



Answer: A



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43. Final products, when natural rubber heated in air are

A. CO , H_2O

B. CO_2 , H_2O

C. Isoprene, 1, 3-butadiene

D. Propene and ethene

Answer: B



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44. Number average molecular weight ($\overline{M}_n$) of polymers is determined by

(a) Osmotic pressure method (b) End group analysis method

(c) Light scattering method (d) Ultra centrifuge method

A. only a

B. only a and b

C. only c and d

D. all

Answer: B



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45. For a class of proteins the correct relation among the following is

A. $\overline{M}_w > \overline{M}_n$

B. $\overline{M}_n > \overline{M}_w$

C. $\overline{M}_n = \overline{M}_w$

D. $\overline{M}_n = 2\overline{M}_w$

Answer: C



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46. For most of the synthetic polymers

A. $\overline{M}_w > \overline{M}_n$

B. $\overline{M}_n > \overline{M}_w$

C. $\overline{M}_n = \overline{M}_w$

D. $\overline{M}_n = 2\overline{M}_w$

Answer: A



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47. Generally for natural polymers PDI is

A. 0

B. 1

C. 10

D. 100

Answer: B



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48. If $\overline{M}_w$ is the weight -average molecular weight and $\overline{M}_n$ is the number -average molecular weight of polymer, the poly dispersity index (PDI) of the polymer is given by

A. $\frac{\overline{M}_n}{\overline{M}_w}$

B. $\frac{\overline{M}_w}{\overline{M}_n}$

C. $\overline{M}_w \times \overline{M}_n$

D. $\frac{1}{\overline{M}_w \times \overline{M}_n}$

Answer: B



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49. $\overline{M}_n$ of a polymer containing 30% molecules with molecular mass 20,000, 40% have the rest have 60,000 is

A. 36×10^5

B. 36×10^3

C. 18×10^3

D. 18×10^5

Answer: B



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50. The correct formula to calculate the weight average molecular weight of polymers is

A. $\frac{\sum N_i M_i}{\sum N_i}$

B. $\frac{\sum N_i M_i^2}{\sum N_i}$

C. $\frac{\sum N_i M_i}{\sum N_i M_i^2}$

D. $\frac{\sum N_i M_i^2}{\sum N_i M_i}$

Answer: D



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51. In the determination of number average molecular weight of polymers by osmotic pressure experiment, (π / C) along Y-axis 'c' along X-axis graph, Y intercept i.e. $(\pi / c)_0$ is equal to

A. $Rt\overline{Mn}$

B. $\frac{\overline{Mn}}{RT}$

C. $\frac{RT}{\overline{Mn}}$

D. $\frac{R}{\overline{Mn}T}$

Answer: C



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52. 1 kg of ethylene undergo polymerization completely, then the weight of polyethylene obtained is

A. 1000 gm

B. $< 1000gm$

C. $> 1000gm$

D. 500 gm

Answer: A



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53. The mass average molecular mass and number average molecular mass of a polymer are respectively 40,000 and 30,000. The poly dispersity index of polymer will be

A. < 1

B. > 1

C. 1

D. 0

Answer: B



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54. Proteins are polyamides of

A. β -amino acids

B. α -amino acids

C. α -hydroxy acids

D. β -keto acids

Answer: B



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55. Glucose is stored in our body as

- A. Fats
- B. Glycogen
- C. Lipids
- D. Sucrose

Answer: B



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56. Which one of the following is not a bipolymer

- A. Cellulose
- B. Proteins
- C. DNA
- D. Nylon-6,6

Answer: D



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57. Keratin is present in

- A. Blood
- B. Hair
- C. Milk
- D. Muscles

Answer: B



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58. In which one of polysaccharide, D glucose units are joined same as in starch

A. Dextron

B. Dextrin

C. Cellulose

D. Lactose

Answer: B



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59. Which one of the following is not a natural polymer

A. Cellulose

B. Protein

C. PVC

D. Nucleic acid

Answer: C



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60. Which of the following is not a polymer

- A. Silk
- B. DNA
- C. DDT
- D. Dextrin

Answer: C



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61. Fibrous and globular proteins are formed due to — structure of protein

- A. Primary
- B. Secondary
- C. Tertiary

D. Quaternary

Answer: C



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62. Natural starch is a mixture of

- A. 10-20% amylopectin and 80-90% amylose
- B. 10-20% amylose and 80-90% amylopectin
- C. 50% amylose and 50% amylopectin
- D. 75% amylose and 25% amylopectin

Answer: B



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63. Partial hydrolysis of starch gives

A. Dextrose

B. Dextrin

C. Sucrose

D. Raffinose

Answer: B



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Level I Exercise II

1. The polymer used for post-operative stitches

A. PHBV

B. Nylon-2-Nylon-6

C. Polylactic acid

D. Buna-S

Answer: C



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2. Which of the following monomer in excess makes PHBV more flexible

- A. β -hydroxy butanoic acid
- B. α -hydroxy butanoic acid
- C. β -hydroxy pentanoic acid
- D. α -hydroxy pentanoic acid

Answer: C



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3. The first polymer used as biodegradable material is

- A. Dextrose

B. Dextrin

C. Dextron

D. Decron

Answer: C



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4. Which of the following is a biodegradable polymer

A. Cellulose

B. Polythene

C. PVC

D. Nylon 6

Answer: A



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5. Polymer used in making capsules

- A. Poly glycolic acid
- B. Poly lactic acid
- C. Nylon-2-Nylon-6
- D. PHBV

Answer: D



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6. Monomers of which one of the following biodegradable polymer are amino acids

- A. polyglycolic acids
- B. PHBV
- C. Nylon-6
- D. Nylon-2-Nylon-6

Answer: D



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7. Incorrect statement about PHBV is

- A. it is co-polymer of 3-hydroxybutanoic acid and 3-hydroxypentanoic acid
- B. it has ester linkage
- C. excess of hydroxy pentanoic acid makes the polymer more together
- D. it undergo degradation by bacteria

Answer: C



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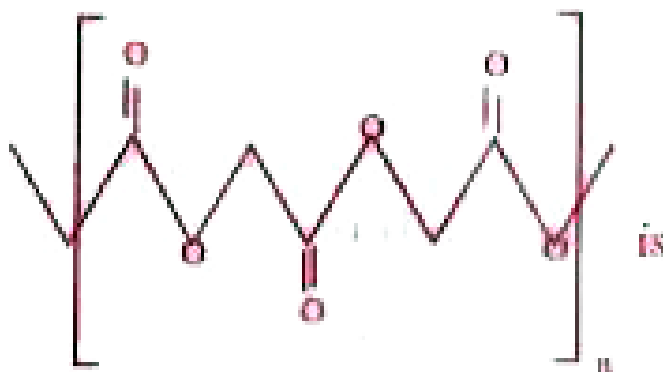
8. By which one of the following enzymatic chemical reaction biopolymers undergo degradation

- A. Hydrolysis only
- B. Oxidation only
- C. Dehydration only
- D. Oxidation (or) hydrolysis

Answer: D

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9.



- A. polyglycolic acid
- B. polylactic acid
- C. PHBV

D. Nylon-2-Nylon-6

Answer: A



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10. Which of the following is a bio degradable polymer

A. Polythene

B. Bakelite

C. PHBV

D. PVC

Answer: C



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11. The raw materials used in Nylon-6 is

- A. Adipic acid
- B. Phthalic acid
- C. Ethylene glycol
- D. Caprolactam

Answer: D



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12. A polymer commonly used for making non-stick cookware is

- A. SBR
- B. Teflon
- C. PVC
- D. Poly ethyl acrylate

Answer: B



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13. Nylon threads are made of

- A. Polyethylene polymer
- B. Polyvinyl polymer
- C. Polyester polymer
- D. Polyamide polymer

Answer: D



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14. Polymers used in unbreakable glass is

- A. PMMA
- B. Poly vinyl cyanide
- C. PVC

D. PVP

Answer: A



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15. The polymer used in the manufacture of electrical goods such as switches, plugs etc is

A. Polythene

B. Bakelite

C. Neoprene

D. PHBV

Answer: B



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16. Which of the following is used in life saving substance as blood plasma

- A. Cellulose
- B. Teflon
- C. Bakelite
- D. Poly viyl pyrrolidone

Answer: D



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17. Rayon is

- A. synthetic plastic
- B. Artificial silk
- C. Natural silk
- D. Natural rubber

Answer: B



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18. In the name Nylon-6,6, the numbers 6,6 represents

- A. the number of monomer molecules from which the polymer formed
- B. types of monomer from which the polymer formed
- C. number of carbon atoms present in the types of monomers from which the polymer formed
- D. number of oxygen atoms present in the two types of monomers from which the polymer formed

Answer: C



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19. Pyroxylin is

A. low density polyethylene

B. a type of rayon

C. a silicon polymer

D. a polyamide

Answer: B



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20. Orlon is a polymer is

A. Styrene

B. Acrylonitrile

C. Vinyl chloride

D. C_2F_4

Answer: B



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21. Catalyst used in the polymerisation of ethylene is

A. Ag

B. O_2

C. Ni

D. $Pd + BaSO_4$

Answer: B



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22. The catalyst used in the manufacture of SBR is

A. Pt

B. Ni

C. coke

D. Na

Answer: D



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23. Characteristic property of teflon is

- A. 2000 poise viscosity
- B. high surface tension
- C. non-inflammable and resistant to heat
- D. high reactive

Answer: C



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24. The monomers used in the production of nylon-6,6 are

- A. hexamethylene diamine and ethylene glycol
- B. adipic acid and ethylene glycol
- C. adipic acid and hexamethylene diamine
- D. dimethyl terephthalate and ethylene glycol

Answer: C



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25. Terylene is the polymer of

- A. Ethylene glycol and terephthalic acid
- B. Melamine and formaldehyde
- C. Vinyl chloride and formaldehyde
- D. hexamethylene diamine and adipic acid

Answer: A



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26. Which of the following has ester linkage

A. Nylon-6,6

B. PVC

C. Terylene

D. SBR

Answer: C



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27. The synthetic polymer which resembles natural rubber is

A. Neoprene

B. PMMA

C. Glyptal

D. Nylon

Answer: A



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28. Bakelite is obtained from phenol by reacting with

A. CH_3CHO

B. CH_3COCH_3

C. $HCHO$

D. $(CH_2OH)_2$

Answer: C



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29. Which of the following is a polymer containing nitrogen

A. Terylene

B. Polyethene

C. PVC

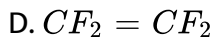
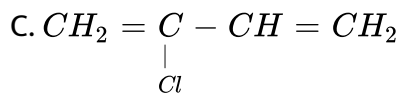
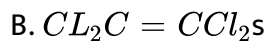
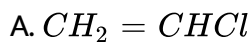
D. Nylon

Answer: D



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30. Which of the following monomers gives the polymer neoprene on polymerisation ?



Answer: C

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31. Monomer of $\left(\begin{array}{c} CH_3 \\ | \\ - C - CH_2 - \\ | \\ CH_3 \end{array} \right)_n$ is

A. 2-methyl propene

B. Styrene

C. Propylene

D. Ethene

Answer: A

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32. Acrylon is hard, horny and a high melting material. Which of the following represents its structure.

- A. $\left(-CH_2 - \underset{\substack{| \\ CN}}{CH} - \right)_n$
- B. $\left(-CH_2 - \underset{\substack{CH_3 \\ | \\ C \\ | \\ COOCH_3}}{C} - \right)_n$
- C. $\left(-CH_2 - \underset{\substack{| \\ COOC_2H_5}}{CH} - \right)_n$
- D. $\left(-CH_2 - \underset{\substack{| \\ Cl}}{CH} - \right)_n$

Answer: A



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33. Polymer used in bullet proof is or plexi glass is

- A. Polystyrene
- B. Poly acrylonitrile
- C. Poly ethyl acrylate
- D. Polymethyl methacrylate

Answer: D



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34. Buna-N is a polymer of

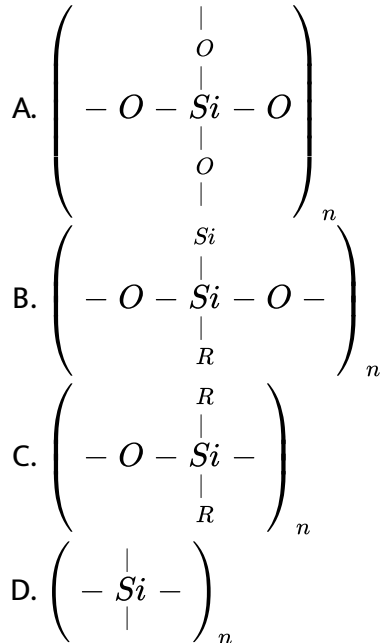
- A. Butadiene
- B. Butadiene and sodium acetanilide
- C. Butadiene and styrene
- D. Butadiene and vinyl cyanide

Answer: D



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35. Structure of Silicone polymer is



Answer: C



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36. Which of the following can not be grouped as polyolefin

- A. polyethene
- B. polypropene
- C. polystyrene
- D. Bakelite

Answer: D



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37. Which one of the following is not a vinyl polymer

A. PVC

B. polystyrene

C. polyacrylonitrile

D. PTFE

Answer: D



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38. The catalyst used for the polymerisation of olefins is

A. Ziegler Natta catalyst

B. Wilkinson's catalyst

C. Pd- catalyst

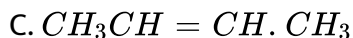
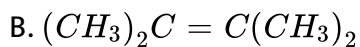
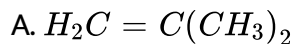
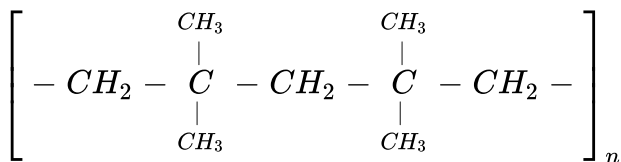
D. Zeise's salt catalyst

Answer: A



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39. The monomer of the polymer



Answer: A

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40. Which of the following polymer is an example of fibre

- A. Silk
- B. Dacron
- C. Nylon 66
- D. All of these

Answer: D

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41. $[NH - (CH_2)_6 - NH - CO - (CH_2)_4 - CO]_n -$

- A. Homo polymer
- B. Co-polymer & Nylon - 6,6
- C. Addition polymer

D. Thermosetting polymer

Answer: B



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42. Which of the following is not correct regarding terylene

A. Step growth polymer

B. Synthetic fibre

C. Condensation polymers are also known as step growth polymers.

D. Thermosetting plastic

Answer: D



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1. (A) : Teflon has high thermal stability and chemical inertness

(R) : Teflon is a thermoplastic

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. (A) is false but (R) is true

Answer: B



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2. (A) : The gross mobility of elastomer chain is its special characteristics

(R) : It contains a network of cross link

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. (A) is false but (R) is true

Answer: D



Watch Video Solution

3. (A) : Natural rubber is an addition polymer.

(R) : Natural rubber has cis structure

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. (A) is false but (R) is true

Answer: B



Watch Video Solution

4. (A) : Natural rubber is elastic and non-crystalline.

(R) : Weak van der Waals forces are present.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. (A) is false but (R) is true

Answer: B



Watch Video Solution

5. (A) Polypropylene is an addition polymer

(R) : Polypropylene is polythene

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. (A) is false but (R) is true

Answer: C



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6. (A) : Polybutadiene is an example of chain growth polymer

(R) : In chain growth polymer the reactive particles may be free radicals or ions (cations or anions) to which monomers get added by a chain reaction

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. (A) is false but (R) is true

Answer: A



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7. (A) The polymerization of propylene is carried out in presence of SnCl_4 and Aluminium triethyl chloride

(R) : SnCl_4 and Aluminium triethyl chloride acts as the catalyst in the polymerization reaction

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. (A) is false but (R) is true

Answer: C



Watch Video Solution

8. (A) : Most of the polymeric materials are non biodegradable

(R) : But they have increasing use due to low cost and variable applications

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. (A) is false but (R) is true

Answer: D



Watch Video Solution

9. (A) : Cellulose acetate and cellulose nitrate are used in textiles because
(R) : Cellulose acetate and cellulose nitrate are fibres

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. (A) is false but (R) is true

Answer: D

10. (A) : Styrene is more reactive than propene towards cationic polymerization

(R) : The carbocation formed from styrene is less stable than that formed from propene.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. (A) is false but (R) is true

Answer: C

11. (A) : Bakelite is copolymer

(R) : Bakelite is a thermosetting material

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. (A) is false but (R) is true

Answer: B



Watch Video Solution

12. (A) : Glyptal is obtained by the condensation polymerization of ethylene glycol and phthalic acid

(R) : Glyptal is used in the manufacture of paints and lacquers.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. (A) is false but (R) is true

Answer: A



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13. (A) : Novac is heated in presence of hexamethyl tetramine to form hard Bakelite

(R) : This heating forms a straight-linked three dimensional polymeric arrangement

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. (A) is false but (R) is true

Answer: A



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14. (A) : Nylon 6,6 is a fibre. Because

(R) : It is an addition polymer

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. (A) is false but (R) is true

Answer: C



Watch Video Solution

15. (A) Nylon - 6,6 is classified as a condensation heteropolymer.

(R) : Nylon is polyamide having $-CO-NH-$ linkage.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false

D. (A) is false but (R) is true

Answer: B



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16. (A) : Bakelite is thermosetting polymer.

(R) : Bakelite has three dimensional network structure.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. (A) is false but (R) is true

Answer: A



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17. (A) : Natural rubber is a polymer of cis-isoprene

(R) : Poly trans isoprene is called Gutta-percha

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. (A) is false but (R) is true

Answer: B



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18. (A) : The vulcanised rubber has greater elasticity and tensile strength than crude rubber

(R) : Sulphur cross-links are developed

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. (A) is false but (R) is true

Answer: A



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19. (A) : Addition of CH_3COOH and $HCOOH$ electrolytes causes coagulation by neutralising the charge of the colloid (latex)

(R) : Rubber particles are negatively charged

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. (A) is false but (R) is true

Answer: A



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20. (A) : Osmotic pressure method is the most suitable method to determine the number average molecular masses of polymers.

(R) : Osmotic pressure can be accurately determined for polymer of high molecular mass as it is a colligative property.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. (A) is false but (R) is true

Answer: A



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21. (A) : Molecular mass of polymers is always expressed as an average

(R) : Generally, a polymer sample contains chains of varying lengths

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

- B. Both (A) and (R) are true (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. (A) is false but (R) is true

Answer: A



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Level II Lecture Sheet Exercise I

1. Which one of the following statement is/are correct

- A. PVC stands for poly vinyl chloride
- B. PTFE stands for teflon
- C. PMMA stands for polymethyl meta acrylate
- D. Buna-S stands for natural rubber

Answer: A::B::C



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2. Which of the following is/are example of natural polymer

A. Wool

B. Silk

C. Leather

D. Nylon

Answer: A::B::C



[Watch Video Solution](#)

3. Which of the following statements about terylene are correct

A. It is poly ester

B. It is obtained by the reaction between ethylene glycol and terephthalic acid

C. It is a condensation polymer

D. It is a natural polymer

Answer: A::B::C



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4. Which of the following polymers involves cross-linkages

A. Rayon

B. Bakelite

C. Melamine

D. Vulcanized rubber

Answer: B::C::D



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5. Synthetic fibres manufactured from cellulose are termed as

- A. Rayon
- B. Nylon
- C. Dacron
- D. Artificial silk

Answer: A::D



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6. Which of the following are copolymers

- A. Polyvinyl chloride
- B. Polyacrylonitrile
- C. Buna rubber
- D. Nylon-6,6

Answer: A::B



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7. Which of the following are copolymers

A. Bakelite

B. Melamine

C. Buna-S

D. Nylon-6,6

Answer: A::B::C::D



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8. Polymers can be classified on the basis of

A. Origin

B. Structure

C. Mechanism

D. Synthesis

Answer: A::B::C::D



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9. Natural polymers are

A. Bakelite

B. Polyisoprene

C. Proteins

D. Polyethylene

Answer: B::C



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10. Synthetic polymers are

- A. Bakelite
- B. Polyvinyl chloride
- C. polystyrene
- D. Natural rubber

Answer: A::B::C



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11. Which of the following is are not an elastomer ?

- A. Bakelite
- B. Polyethylene
- C. Nylon-6
- D. natural rubber

Answer: A::B::C



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12. Which of the following is/are not a fibre ?

A. Bakelite

B. Polyethylene

C. Nylon-6

D. Natural rubber

Answer: A::B::D



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13. Which of the following is/are not a thermoplastic ?

A. Bakelite

B. Polyethylene

C. Nylon-6

D. Natural rubber

Answer: A::C::D



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14. Which of the following is/are not natural polymer ?

A. Terylene

B. Orlon

C. Starch

D. Dacron

Answer: A::B::D



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15. Which of the following is/are a homopolymer ?

- A. Natural rubber
- B. Synthetic rubber
- C. Gutta-percha
- D. Saran

Answer: A::C::D



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16. The example of a homopolymer is

- A. Bakelite
- B. Nylon-6,6
- C. Terylene
- D. Neoprene

Answer: D



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17. Which of the following is a biodegradable polymer

A. PHBV

B. Polyglycolic acid

C. PMMA

D. Nylon-2-Nylon-6

Answer: A::B::D



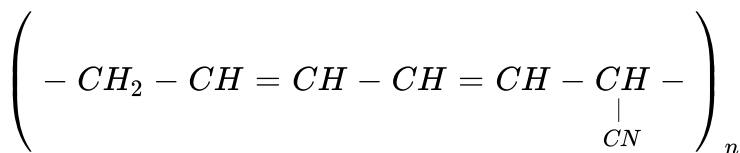
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18. Correct statement about Buna-N is

A. it is copolymer

B. N' stands for propenenitrile

C. its structure is



D. it is an addition polymer

Answer: A::B::D



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19. Correct statement about silicone polymer is

A. they are organic polymers

B. they are available in liquid, solid and gas phases

C. they are used as surface cabinets for missiles

D. they are thermally stable

Answer: B::C::D



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20. Which of the following are linear polymer

- A. Polypeptide
- B. Poly ethylene terphthalate
- C. Starch
- D. Phenol - formaldehyde resin

Answer: A::B



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21. Which one of the following is branch chain polymer

- A. Glycogen
- B. Terylene
- C. Cellulose

D. Silicones

Answer: A::C::D



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22. The man made polymers that are esters include

A. Terylene

B. Dacron

C. Glyptal

D. Nylon

Answer: A::B::C



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23. From ozonolysis experiment on natural rubber we found that

- A. Natural rubber is a linear polymer
- B. Natural rubber is formed by 1,4- linkage of isoprene units
- C. Natural rubber is cis - 1,4-polyisoprene
- D. natural rubber is formed by 1,2-linkage of isoprene units

Answer: A::B::C



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24. Buna-S is a polymer of

- A. Butadiene
- B. Acrylonitrile
- C. Styrene
- D. Chloroprene

Answer: A::C



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25. Example of addition polymer is

A. buna-S

B. PVC

C. nylon-6

D. Neoprene

Answer: A::B::D



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26. Chain initiation and chain propagation steps are involved in

A. Cationic polymerization

B. Anionic polymerization

C. Free radical polymerization

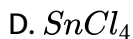
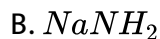
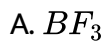
D. Condensation polymerization

Answer: A::B::C



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27. Cationic polymerisation is initiated by



Answer: A::D



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28. Which of the following set(s) contains only addition polymers ?

A. Polyethylene, polypropylene, terylene

B. Polyethylene, PVC, acrolin

C. Buna-S, nylon, polybutadine

D. Neoprene, orlon, teflon

Answer: B::D



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29. Which of the following is chain growth polymer

A. Polypropylene

B. Neoprene

C. Nylon-6,6

D. Nylon-6

Answer: A::B



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30. Polyethylene is

- A. Random copolymers
- B. Homopolymer
- C. Alternate copolymer
- D. Chain growth polymer

Answer: B::D



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31. Teflon, polystyrene and neoprene are all

- A. copolymers
- B. condensation polymers
- C. homopolymers

D. addition polymers

Answer: C::D



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32. Which of the following is/are not a chain growth polymer ?

A. Orlon

B. Terylene

C. Nylon-6

D. Glyptal

Answer: B::C::D



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33. Which of the following is/are not a step growth polymer ?

- A. Orlon
- B. Terylene
- C. Teflon
- D. Styrene

Answer: A::C::D



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34. Dacron is an example of

- A. Polamide
- B. Polypropylene
- C. Polyurethane
- D. Polyester

Answer: C::D



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35. Which one of the following is/are not a thermosetting polymer

A. Nylon-6

B. Nylon-6,6

C. Bakelite

D. SBR

Answer: A::B::D



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36. Polymer obtained by condensation polymerization is

A. Polyethene

B. Bakelite

C. PVC

D. Phenol-formaldehyde resin

Answer: B::D



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37. Glyptal polymer is obtained from phthalic acid by treating it with

A. Malonic acid

B. Glycerol

C. Maleic acid

D. Ethylene glycol

Answer: D



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38. Melamine plastic crockery is a copolymer of :

A. HCHO

B. Ethylene

C. Melamine

D. Malonic acid

Answer: A::C



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39. Polyamide linkage is present in

A. Nylon

B. Terylene

C. Protein

D. Teflon

Answer: A::C



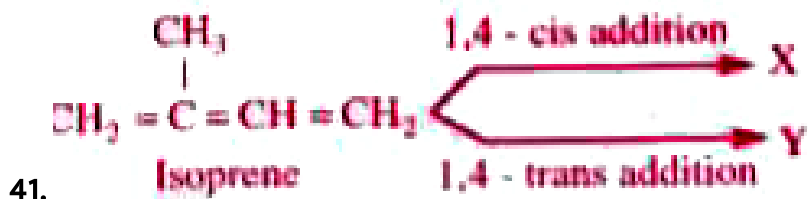
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40. The most suitable method for determination of the molecular mass of polymer is/are

- A. Osmotic pressure
- B. End group analysis
- C. Elevation in boiling point
- D. Depression in freezing point

Answer: A::B

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X and Y are :

A. X is Natural rubber

B. Y is Gutta percha

C. X & Y Natural rubber

D. X & Y are Gutta percha

Answer: A::B



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Level II Lecture Sheet Exercise II Linked Comprehension Type Questions

1. Polymerization involves various mechanisms depending upon the initiator. If initiator generates free radical, addition polymerization takes place through free radical mechanisms. If H^+ is initiator and electron releasing group is present, cationic polymerization takes place. If electron withdrawing group is present and KNH_3 is initiator, anionic polymerization takes place.

Which of the following will induce anionic polymerization

A. KNH_2

B. n-Butyllithium

C. KOH

D. All of these

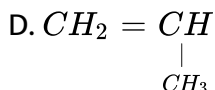
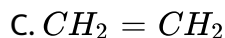
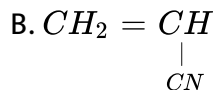
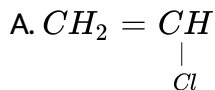
Answer: D



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2. Polymerization involves various mechanisms depending upon the initiator. If initiator generates free radical, addition polymerization takes place through free radical mechanisms. If H^+ is initiator and electron releasing group is present, cationic polymerization takes place. If electron withdrawing group is present and KNH_3 is initiator, anionic polymerization takes place.

Which of the following will undergo cationic polymerization in presence of H^+



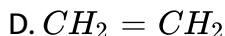
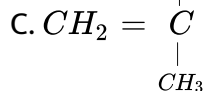
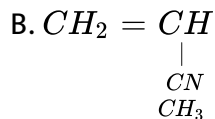
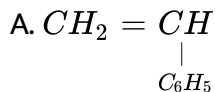
Answer: D



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3. Polymerization involves various mechanisms depending upon the initiator. If initiator generates free radical, addition polymerization takes place through free radical mechanisms. If H^+ is initiator and electron releasing group is present, cationic polymerization takes place. If electron withdrawing group is present and KNH_3 is initiator, anionic polymerization takes place.

Which of the following will undergo anionic polymerization in presence of KNH_2



Answer: A::B



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4. The utility of the polymers in various fields is due to their mechanical properties like tensile strength elasticity, toughness etc. These properties mainly depend upon intermolecular force like van der Waal's forces and hydrogen bonding operating in polymer molecules. POLymers have been classified on this basis, e.g.,

The molecular forces of attraction are weakest in

A. Elastomers

B. Fibres

C. Thermoplastics

D. Thermosetting polymers

Answer: A



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5. The utility of the polymers in various fields is due to their mechanical properties like tensile strength elasticity, toughness etc. These properties mainly depend upon intermolecular force like van der Waal's forces and hydrogen bonding operating in polymer molecules. POLymers have been classified on this basis, e.g.,

Which of the following is hard

A. Elastomers

B. Fibres

C. Thermoplastics

D. Thermosetting polymers

Answer: D



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6. Mostly all polymeric materials are non-bio degradable and as such the discarded plastic materials made out of these polymers create environmental pollution. The chief among the polluting plastic material is polythene. The use of polythene bags, popularly called carry bags and their discardance in the environment is a singular nuisance for municipal cleaning department

Which of the following is a bio degradable polymer ?

A. PHBV

B. Polythene

C. Nylon - 6,6

D. Nylon-6

Answer: A



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7. Mostly all polymeric materials are non-bio degradable and as such the discarded plastic materials made out of these polymers create environmental pollution. The chief among the polluting plastic material is polythene. The use of polythene bags, popularly called carry bags and their discardance in the environment is a singular nuisance for municipal cleaning department

Non-biodegradable polymer is/are

- A. Polyaniline
- B. Starch based polyethylene
- C. PVC
- D. All the above

Answer: C



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8. Mostly all polymeric materials are non-bio degradable and as such the discarded plastic materials made out of these polymers reate environmental pollution. The chief among the polluting plastic material is polythene. The use of polythene bags, popularly called carry bags and their discardance in the environment is a singular nuisance for municipal cleaning department

Most economic and useful substance for the manufacture of carry bags is

- A. Jute
- B. Polythene
- C. Paper
- D. Cloth

Answer: B

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9. The polymer which can conduct electricity is called conducting polymers. The conducting polymers may be conductive element filled polymers or conjugated π -electrons conducting polymer or it can also be doped conducting polymer or blended conducting polymers. Conducting polymers find great importance in electronics, micro electronics and biomedical fields.

Which of the following is a conducting polymer

A. Poly caprolactam

B. Polyacrylic acid

C. Polyacetylene

D. Poly ethylene

Answer: C



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10. The polymer which can conduct electricity is called conducting polymers. The conducting polymers may be conductive element filled

polymers or conjugated π -electrons conducting polymer or it can also be doped conducting polymer or blended conducting polymers. Conducting polymers find great importance in electronics, micro electronics and biomedical fields.

Which polymer is used in batteries

- A. PVC
- B. Polypyrrole
- C. Polymethylacrylate
- D. None

Answer: B



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11. The polymer which can conduct electricity is called conducting polymers. The conducting polymers may be conductive element filled polymers or conjugated π -electrons conducting polymer or it can also be doped conducting polymer or blended conducting polymers. Conducting

polymers find great importance in electronics, micro electronics and biomedical fields.

Presence of conjugated π - electrons in a polymer

- A. Increases its conductivity
- B. Decreases its conductivity
- C. May increase or decrease its conductivity
- D. None

Answer: A



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12. The combination of several monomers under suitable experimental condition to form a giant, three dimensional polymer is known as polymerisation. Natural polymers are classified on the basis of their chemical composition. Synthetic polymers are classified on the basis of the physical properties, into elastomers, plastics and fibres.

Identify the incorrect statement regarding thermosetting polymers

- A. They soften on heating
- B. They are formed by condensation reaction
- C. They have cross-linked structure
- D. They are hard rigid are brittle

Answer: A



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13. The combination of several monomers under suitable experimental condition to form a giant, three dimensional polymer is known as polymerisation. Natural polymers are classified on the basis of their chemical composition. Synthetic polymers are classified on the basis of the physical properties, into elastomers, plastics and fibres.

Which pair corresponds to fibre polymer

- A. Polythene, PMMA
- B. Polythene, Nylon 66

C. Urea - formaldehyde, PMMA

D. Polyester, PAN

Answer: D



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14. The combination of several monomers under suitable experimental condition to form a giant, three dimensional polymer is known as polymerisation. Natural polymers are classified on the basis of their chemical composition. Synthetic polymers are classified on the basis of the physical properties, into elastomers, plastics and fibres.

Saran is

A. An addition homopolymer

B. A co-polymer of vinyl chloride and vinylidene chloride

C. A condensation homopolymer

D. A condensation co-polymer

Answer: B



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Level II Lecture Sheet Exercise II Match The Following Questions

1. Match the following columns

List - I

- A) Styrene
- B) Dacron
- C) Nylon-6, 6
- D) Proteins

List - II

- p) Step - growth polymer
- q) Chain- growth copolymer
- r) Amide linkages
- s) Ester linkages



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2. Match the following columns

List - I

(Polymer)

- A) Natural rubber
- B) Cellulose
- C) Nylon - 6
- D) Teflon

List - II

(Monomer)

- p) Linear polymer of β -glucose
- q) Cis - Isoprene
- r) Tetrafluoroethene
- s) Caprolactum



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3. Match the following columns

List - I

- A) PAN
- B) PMMA
- C) PVC
- D) PTFE

List - II

- p) Orion
- q) Plexiglass
- r) Thermoplastics
- s) Teflon



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4. Match the following columns

List - I

- A) Melamine
- B) Glyptal
- C) Polytetrafluoro ethylene
- D) Buna-S

List - II

- p) Non-breakable plastic formaldehyde cookery
- q) Nonstick utensil coating
- r) Water proof shoes
- s) Paints and lacquers



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5. Match the following columns

List - I

- A) Cellulose
- B) Nylon-6,6
- C) Protein
- D) Sucrose

List - II

- p) Natural polymer
- q) Synthetic polymer
- r) Amide linkages
- s) Glycoside linkages



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6. Match the following columns

List - I

- A) Starch
- B) Rubber
- C) Neoprene
- D) Nylon - 6

List - II

- p) Natural polymers
- q) synthetic polymer
- r) addition polymer
- s) condensation polymer
- t) homo polymer



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7. Match the following columns

List - I

- A) Starch
- B) PHBV
- C) Bakelite
- D) nylon 2 - nylon 6

List - II

- p) condensation polymer
- q) glycosidic linkage
- r) Ester linkage
- s) amide linkage
- t) biodegradable



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8. Match the following columns

List - I

- A) Gypsal
- B) Buna - N
- C) Buna - S
- D) Terylene

List - II

- p) 1,3 - butadiene
- q) Styrene
- r) Acrylonitrile
- s) Ethylene glycol
- t) Phthalic acid

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Level II Lecture Sheet Exercise IV Integer Answer Type Questions

1.1 kg of ethylene undergo polymerization completely, then the weight of polyethylene obtained is 10^x gm. What is x ?

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2. How many of the following are biodegradable polymer, Nylon-6, Nylon-6,6, Nylon -2-Nylon-6, starch, PHBV, polyglycolic acid, polylactic acid, polyacrylonitrile .



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3. Total number of ' π '-bonds present in styrene is



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4. Co-polymers in the following are bakelite, malemine, buna-S, Nylon - 6,6, PMMA, teflon, HDPE. Terylene, Polysiloxane, Polyvenyl Pyrrolidene.



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5. Number of polymers containing ester likages in the following are.
Nylon, giyptal, Dacron, PVC.



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6. The number of carbon items present in the monomer of Teflon is



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7. The number of chain growth polymers among polypropylene, neoprene, Nylon-6,6, PAN, bakelite, terylene.



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8. Sum of nitrogen atom in the monomers of nylon-6, and nylon-6,6 is x and sum of carbon atoms in them is 'y'. Then $\frac{y}{x}$ is



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9. Polymers containing -CONH- linkage among , nylon, bakelite, urea formaldehyde resin, buna-s, neoprene, natural rubber, proteins.



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10. A polymer contains 30% molecules with molecular mass 20,000, 40% have 30,000 and rest have 60,000. Its $\overline{M}_n$ is 36×10^x . What is x.



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Practice Sheet 1 Single Correct Questions

1. Which is not true about polymers?

- A. Polymer do not carry any charge
- B. Polymers have high viscosity
- C. Polymers scatter light
- D. Polymers have low molecular weight

Answer: D



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2. Which one of the following polymers has molecular mass an integral multiple of molecular mass of monomer ?

A. Buna rubber

B. Glyptal

C. Tereylene

D. Nylon-6,6

Answer: A



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3. Which one of the following is obtained by step growth polymerization ?

A. Nylon-6,6

B. Neoprene

C. polyvinylchloride

D. polyvinylpyrrolidene

Answer: A



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4. Which of the following setss contain only addition polymers

A. Polyethene, terylene, PVC

B. Teflon, PVC, PAN

C. Buna-S, PVC, Bakelite

D. Buna-N, PVC, Bakelite

Answer: B



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5. Which of the following statements is wrong

A. Polyethene is addition polymer

- B. Polyethene is a Homopolymer
- C. Polyethene is a condensation polymer
- D. All the above

Answer: C



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6. Bakelite is made from phenol and formaldehyde. The initial reaction between two compounds is an example of

- A. Aromatic nucleophilic substitution
- B. Aromatic electrophilic substitution
- C. Free radical substitution reaction
- D. Free radical addition reaction

Answer: B



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7. Which of the following sets contain only addition homopolymer

A. polyethene, natural rubber, cellulose

B. Starch, nylon, polyester

C. Teflon, Bakelite, Orlon

D. Neoprene, PVC, Polyethene

Answer: D



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8. Which are for elastomers ?

A. They possess elasticity

B. These possess weakest intermolecular forces of attraction between polymer chains

- C. These possess strongest inter molecular forces of attraction between polymer chains
- D. Buna rubber is an example of elastomer

Answer: A::B::D



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9. Which of the following statements about addition polymerisation are correct ?

- A. Monomers containing $C=C$ bond can undergo this polymerisation
- B. Polymer molecules many contain $C=C$ bond
- C. Addition polymers are formed by chain reactions
- D. Molecular weight of addition polymer molecule is integral multiples of molecular weight of its monomers

Answer: A::B::C::D



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10. Which of the following statements about condensation polymers are correct ?

- A. Condensation polymer molecule does not contain same number of atoms as the number of atoms present in all monomers
- B. Monomers of condensation polymers have polyfunctional groups
- C. Majority of condensation polymers are co-polymers
- D. Molecular weight of condensation polymer molecule is integral multiples of molecular weight of its monomers

Answer: A::B::C



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11. Which of the following statements are correct for Linear polymers ?

- A. Linear polymers may be condensation as well as addition polymers
- B. Structure is well packed in nature
- C. Linear polymers have higher density, higher melting point and higher tensile strength
- D. Linear polymers have lower density, higher melting point and low tensile strength

Answer: A::B::C



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12. Chain-growth polymerization may proceed by the following mechanism

- A. Free radical polymerization
- B. Cationic polymerization
- C. Anionic polymerization

D. None of the above

Answer: A::B::C



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13. Which of the following are plasticisers ?

A. DOP

B. DBP

C. Cresyl phosphates

D. Sodium adipate

Answer: A::B::C



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14. Which of the following polymers made by cationic addition polymerisation.

A. PVC

B. PIB

C. HDPE

D. LDPE

Answer: B



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Practice Sheet 1 Linked Comprehension Type Questions

1. Based on the behaviour of polymer it can be classified into two forms i.e. thermo plastic polymers and thermosetting polymers. The thermoplastics can be softened (or) plasticized repeatedly on application of thermal energy. The thermosetting polymers can be obtained in soluble

and fusible forms in early (or) intermediate stages of their synthesis but they get secured and become insoluble and infusible when further heated (or) thermally heated.

Thermo plastic polymers are formed by

- A. Either addition (or) condensation method
- B. Both addition and condensation method
- C. Only addition method
- D. Only condensation method

Answer: A



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2. Based on the behaviour of polymer it can be classified into two forms i.e. thermo plastic polymers and thermosetting polymers. The thermo plastics can be softened (or) plasticized repeatedly on application of thermal energy. The thermo setting polymers can be obtained in soluble and fusible forms in early (or) intermediate stages of their synthesis but

they get secured and become insoluble and infusible when further heated (or) thermally heated.

Thermosets can have

- A. Branch structure
- B. Linear structure
- C. Three dimensional cross linked network
- D. All the above

Answer: C



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3. Based on the behaviour of polymer it can be classified into two forms i.e. thermo plastic polymers and thermosetting polymers. The thermoplastics can be softened (or) plasticized repeatedly on application of thermal energy. The thermosetting polymers can be obtained in soluble and fusible forms in early (or) intermediate stages of their synthesis but they get secured and become insoluble and infusible when further

heated (or) thermally heated.

(1) Thermosets donot soften on heating

(2) Thermo plastic soften on heating and stiffen on cooling

A. is true (2) in false

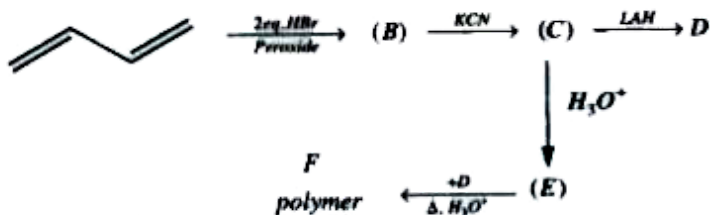
B. (1) is false (2) is true

C. both (1) & (2) are false

D. both (1) & (2) are true

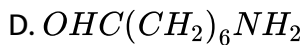
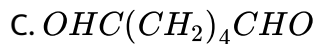
Answer: D

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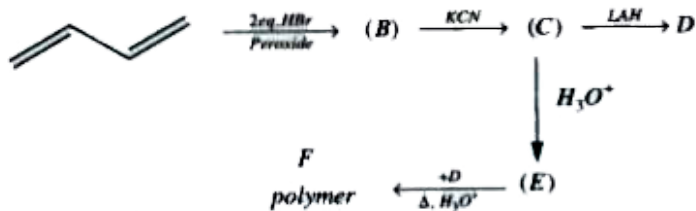
4.

Compound (D) is



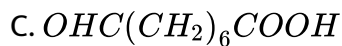
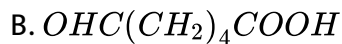
Answer: B

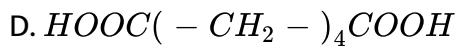
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5.

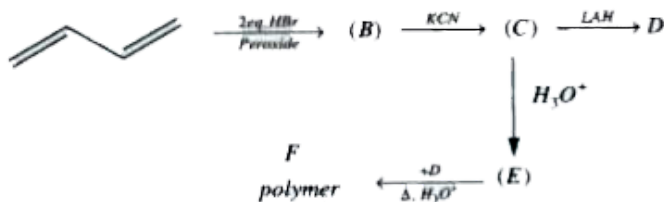
Compound (E) is





Answer: D

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6.

Polymer (F) is

A. Nylon-6

B. Dacron

C. Nylon-6,6

D. Nylon-6,10

Answer: C

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Practice Sheet 1 Match The Following Questions

1.

Molecular mass of
Polymer and PDI

Method of determination
molecular mass of polymer

- | | |
|--|--------------------------------|
| (A) Number avg molecular mass ($\overline{M}_n$) | (p) Light scattering and ultra |
| (B) Weight avg molecular mass ($\overline{M}_w$) | (q) osmotic pressure method |
| (C) PDI of natural polymer | (r) $PDI = 1$ |
| (D) PDI of synthetic polymer | (s) $PDI > 1$ |



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List-I

List-II

- | | |
|--------------------|--|
| (A) <i>HDPE</i> | (p) cationic addition polymerisation |
| 2. (B) Polypropene | (q) Condensation polymerisation |
| (C) PVC | (r) Free radical addition polymerisation |
| (D) Dacron | (s) Anionic addition polymerisation |



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- | | List-I | | List-II |
|----|-----------------|-----|----------------------|
| | (A) Terylene | (p) | Elastomer |
| 3. | (B) Bakelite | (q) | fibre |
| | (C) neoprene | (r) | thermo setting |
| | (D) Polystyrene | (s) | condensation polymer |



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- | | List-I | | List-II |
|----|---------------|-----|----------------------|
| | (A) Nylon-6 | (p) | homo polymer |
| 4. | (B) nylon-6,6 | (q) | co-polymers |
| | (C) Teflon | (r) | step growth polymer |
| | (D) Buna-S | (s) | chain growth polymer |



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Practice Sheet 1 Integer Answer Types Questions

1. How many of the following are natural polymers ?

Cellulose, Cellulose acetate, Cellulose nitrate, starch, proteins, plastic, bakelite, melamine, teflon



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2. How many of the following are synthetic polymers?

Cellulose, cellulose nitrate, rayon, nylon, teflon, P.V.C. polyacrylonitrile, terylene



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3. How many of the following are addition polymers ?

Terylene, Teflon, nylon, polyesters, polystyrene, Bakelite, PVC, PAN, Buna-N, Buna-S, Neoprene isoprene



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4. How many of the following are condensation polymers ?

Terylene, Teflon, nylon, cellulose, starch, proteins, bakelite, melamine, PVC, PAN



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5. How many of the following are homopolymers ?

Polystyrene, Dacron, nylon-66, Bakelite, PVC, PAN, Teflon, Rayon



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6. How many of the following are co polymers ?

Polystyrene, Polyester, Bakelite, Buna-N-Rubber, Buna-S-Rubber, glyptal, Teflon, Terylene, Polythene



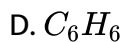
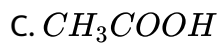
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Practice Sheet 2 Single Answer Questions

1. Which of the following used to coagulate the rubber latex ?

A. HCOOH

B. H_2O



Answer: A::C



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2. IUPAC name of chloroprene is

A. 1-chloro-1,3-butadiene

B. 2-chloro-1,3-butadiene

C. 1-chloro-butadiene

D. 2-chloro-1,2-butadiene

Answer: B



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3. GR-S rubber is a copolymer is

- A. Butadiene & Acrylonitrile
- B. Butadiene & Styrene
- C. Ethylene & styrene
- D. Ethylene & Vinyl cyanide

Answer: B



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4. Which of the following is called nitrile rubber

- A. Butyl rubber
- B. Buna-N
- C. Buna-S
- D. All the above

Answer: B



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5. IUPAC name of isoprene is

- A. 1-Methyl-1,3-butadiene
- B. 2-Methyl-1,2-butadiene
- C. 2-Methyl-1,3-butadiene
- D. 1-Methyl-1,2-butadiene

Answer: C



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6. Orlon is a polymer made by using the monomer/monomers

- A. Adipic acid & glycol

B. Acrylic acid & glycol

C. Acrylonitrile

D. Acrylonitrile & Butadiene

Answer: C



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7. Phenol $\xrightarrow{\text{Raney nickel}}$ $\xrightarrow{\text{CrO}_3 / \text{H}_2\text{SO}_4}$ $\xrightarrow{\text{H}_2\text{NOH}}$ $\xrightarrow{\text{H}_2\text{SO}_4 \text{ and heat}}$ $\xrightarrow{\text{H}_2\text{O heat}}$ Polymer.

The polymer is

A. Dacron

B. Nylon-6

C. Nylon-6,6

D. None of them

Answer: B



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8. A sample of a polymer contains 200 molecules of molecular mass 10^3 each, 300 molecules of molecular mass 10^4 each and 500 molecules each having 10^5 as a molecular mass. M_n is

A. 94553

B. 53200

C. 25200

D. 26000

Answer: B



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Practice Sheet 2 One Or More Than One Answer

1. Which of the following polymer contain 1,3-butadiene as one of the monomers ?

- A. SBR
- B. nitrile rubber
- C. butyl rubber
- D. ABS plastic

Answer: A::B::C::D



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2. Average molecular weight of a polymer can be determined by

- A. Colligative property osmotic pressure
- B. End group analysis
- C. Viscosity measurements
- D. Scattering of light

Answer: A::B::C::D



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3. Which of the following is correct ?

A. $\overline{M}_w$, of a polymer is greater than $\overline{M}_n$

B. $\overline{M}_n$, of a polymer is greater than $\overline{M}_w$

C. For synthetic polymers PDI is greater than 1

D. During vulcanization rubber becomes cross linked with zinc oxide

Answer: A::C



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4. Which of the following are polyamide polymers.

A. Nylon - 6,10

B. Nylon-6,6

C. Nylon-5

D. Perlon-U

Answer: A::B::C



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5. Which of the following are polycarbamate ester polymers

A. Polyurethane

B. Perlon-U

C. Melmac

D. Saran

Answer: A::B



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6. Which of the following are used as free radical chain initiators.

A. Benzoyl peroxide

B. t-butyl peroxide

C. CCl_4

D. benzoquinone

Answer: A::B



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7. Nylon-6,10 can be prepared by

A. $H_2N(CH_2)_6NH_2$ + Decanoic acid (Sebacic acid)

B. $HOOC(CH_2)_3COOH + (NH_2)(CH_2)_1NH_2$

C. $NH_2(CH_2)_6NH_2 + HOOC(CH_2)_8COOH$

D. $H_2N(CH_2)_{10}NH_2 + HOOC(CH_2)_4COOH$

Answer: A



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8. Polymerisation may occur through intermediate formation of

- A. Carbocations
- B. Carbanions
- C. Free radical
- D. Carbenes

Answer: A::B::C



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Practice Sheet 2 Linked Comprehension Type Questions

1. Natural rubber or raw rubber consists of basic material latex which is a dispersion of isoprene. Natural rubber can treatment this isoprene polymers to form a high molecular weight polymer of isoprene. Natural

rubber can be obtained from five hundred different species of plants.

In the isoprene polymer all the isoprenes have

- A. Trans 1,4 configuration
- B. Cis 1,4 configuration
- C. Both cis & trans 1,4 configuration
- D. Cis 1,2 configuration

Answer: B



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2. Natural rubber or raw rubber consists of basic material latex which is a dispersion of isoprene. Natural rubber can treatment this isoprene polymers to form a high molecular weight polymer of isoprene. Natural rubber can be obtained from five hundred different species of plants.

(i) Tensile strength of vulcanized rubber is almost ten times more than raw rubber.

(ii) Elasticity of raw rubber is very high.

- A. (i) is true (ii) is false
- B. (i) is false (ii) is true
- C. Both (i) & (ii) are true
- D. both (i) & (ii) are false

Answer: C



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3. Natural rubber or raw rubber consists of basic material latex which is a dispersion of isoprene. Natural rubber can treatment this isoprene polymers to form a high molecular weight polymer of isoprene. Natural rubber can be obtained from five hundred different species of plants.

The molecular weight of the raw rubber is about

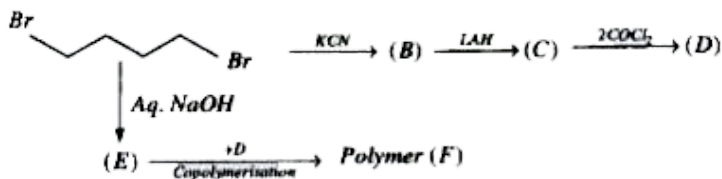
- A. 1,00,000 - 1,50,000
- B. 5,000-10,000
- C. 2,00,000 - 5,00,000

D. 50,000 - 1,00,000

Answer: A

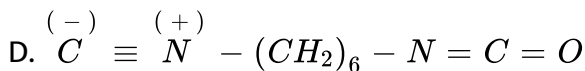
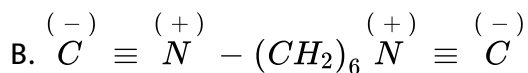


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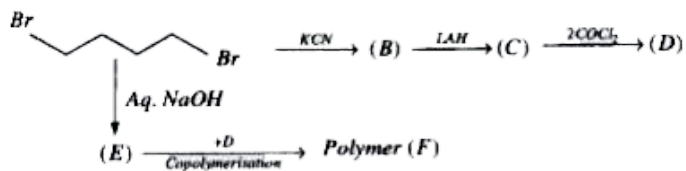
The compound (D) is



Answer: A



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5.

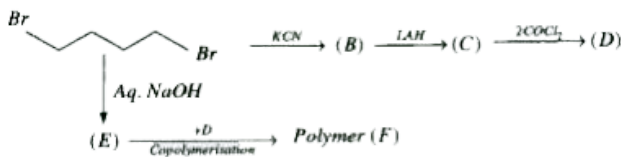
Compound (E) is



Answer: C



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6.

The polymer (F) is

A. Polyurethane

B. Perlon-U

C. Both a & b

D. Nylon - 6

Answer: C



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Practice Sheet 2 Match The Following Questions

- | | List-I | | List-II |
|----|--------------|-----|----------------------|
| 1. | (A) Perlon L | (p) | chain growth polymer |
| | (B) PET | (q) | Step growth polymer |
| | (C) PMMA | (r) | homopolymer |
| | (D) PTFE | (s) | Co-polymer |
| | | (t) | fibres |



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- | | List-I | | List-II |
|----|-------------|-----|--------------|
| 2. | (A) PVC | (p) | adhesives |
| | (B) Teflon | (q) | cooking ware |
| | (C) nylon-6 | (r) | textiles |
| | (D) PET | (s) | ropes |
| | | (t) | homo polymer |



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Practice Sheet 2 Integer Answer Types Questions

1. Polydispersity index of polymers of uniform length is equal/nearly equal to.....



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2. In a sample of a polymer, 100 molecules have molecular mass 10^3 each and 200 molecules have molecular mass 10^4 each, the Number average molecular weight of polymer is $x \times 10^3$ then 'x' is



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3. If a natural rubber has a molecular weight of 20,400 then the no. of repeating units in the polymer is $x \times 10^y$. $(x + y)$ is equal to



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4. How many of the following are biodegradable polymers ?

PVC, polythene, PTFE, PMMA, PHBV, polylactic acid, polyglycolic acid, polyacrylonitrile, nylon 2-nylon-6, nylon 66.



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5. How many of the following polymers with ester linkage ?

Dacron, Teflon, Gyptal, PHBV, PMMA poly lactic acid, polyglycolic acid, nylon-6,6, nylon-6



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6. Osmotic pressure measurement of a polymer solution at $27^{\circ}C$ gave a value for $(\pi/c)_0$ as $2.463 \times 10^{-4} \text{ L atm g}^{-1}$. The $\overline{M}_n$ of the polymer 10^x , x is



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Practice Sheet 3 Single Answer Questions

1. All terpenes have carbon skeletons made up of

A. Isoprene units

B. Vinyl units

C. Alkenes

D. Ethylene units

Answer: D



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2. One would come across the terms isotactic, syndiotactic and atactic in connection with the chemistry of

A. Polymers

B. Dyes

C. Crystals

D. Textiles

Answer: A



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3. The commercial name of polymethyl methacrylate is

- A. Lucite
- B. Plexiglass
- C. Perspex
- D. all of the above

Answer: D



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4. The monomer unit of silicon, a water repellent, acid resistant and heat resistant, polymer is

- A. Si
- B. SiO_2
- C. R_2SiO
- D. None of these

Answer: C



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5. The turbidity of a polymer solution measures

- A. light absorbed by the solution
- B. light transmitted by a solution
- C. light scattered by the solution
- D. none of the above

Answer: C



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6. Drink and baby feeding bottles are generally made of

- A. poly-urea

B. polyurethane

C. polyester

D. polyamide

Answer: C



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7. Synthetic human hair wigs are made from a copolymer of vinyl chloride and acrylonitrile, which is called

A. PVC

B. polyacrylonitrile

C. cellulose

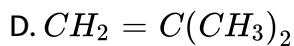
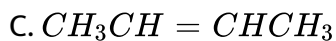
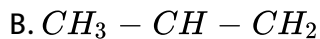
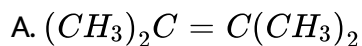
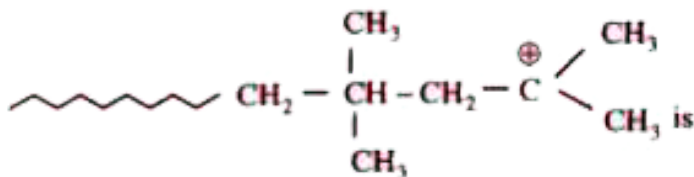
D. Dynel

Answer: D



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8. The monomer of the polymer



Answer: D



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Practice Sheet 3 One Or More Than One Answer

1. Which is not a macromolecule

- A. DNA
- B. Insulin
- C. Palmitate
- D. Starch

Answer: C



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2. Which of the following polymers can be used for lubrication and as an insulator.

- A. SBR
- B. PA_n
- C. PTFE
- D. PVC

Answer: C



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3. Which of the following sets contains thermoplastics.

- A. Glyptal, melmac, PAN
- B. Polythene, Bakelite, Nylon-6
- C. PVC, PMMA, polystyrene
- D. Polypropylene, urea-formaldehyde, Teflon

Answer: C



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4. Vulcanised rubber resists

- A. wear and tear due to friction
- B. cryogenic temperature
- C. high temperature

D. action of acids

Answer: A



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5. Polymerisation buta -1,3-diene by the free radical mechanism gives

A. trans-1,4, polybutadiene

B. cis-1,4, polybutadiene

C. polyvinyl polythene

D. polyallyl polythene

Answer: A::B::C



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6. Isoprene, $CH_2 = C - \underset{\substack{| \\ CH_3}}{CH} = CH_2$, is the repeating unit in

A. Vitamin-A

B. Terpenes

C. Rubber (natural)

D. Buna-S

Answer: A::B::C



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7. Which of the following are not used as chain transfer agents ?

A. CCl_4

B. CBr_4

C. Benzoquinone

D. Benzoyl peroxide

Answer: C::D



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8. Which of the following fibers are made of polyamides

A. cellulose acetate

B. Rayon

C. Natural silk

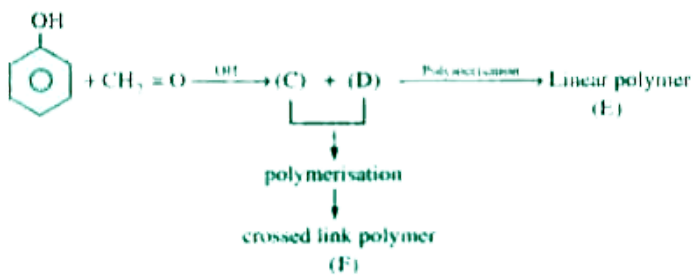
D. Nylon

Answer: C::D



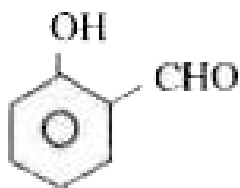
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Practice Sheet 3 Linked Comprehension Type Questions

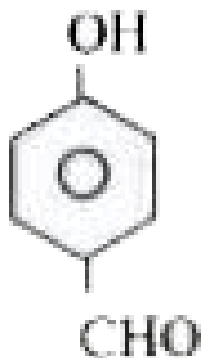


1.

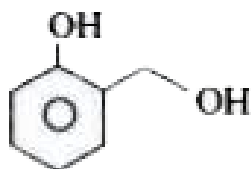
The compound (C) and (D) are



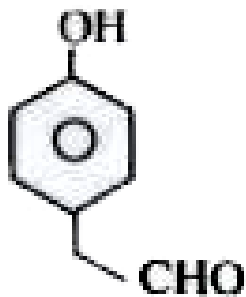
A.



B.

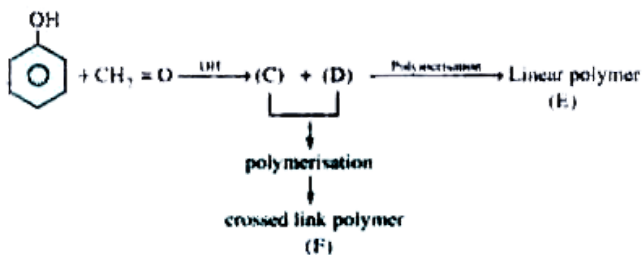


C.



Answer: B

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The linear polymer (E) is

A. Resol

B. Novolac

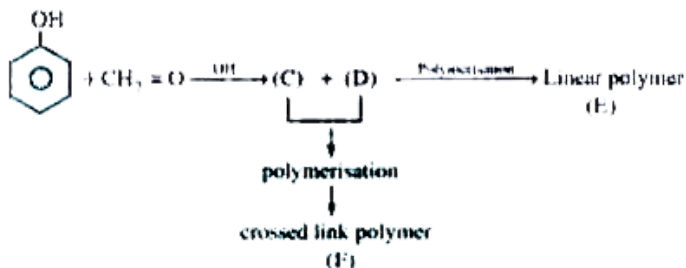
C. Both a and b

D. Decron

Answer: C



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The cross-linked polymer (F) is

A. Resol

B. Novolac

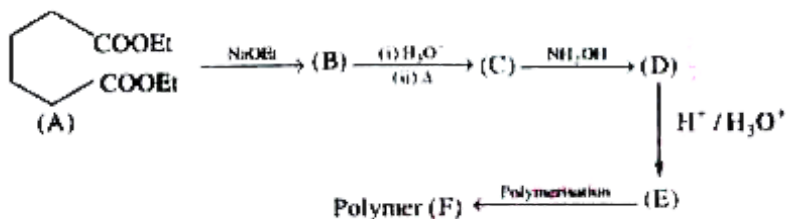
C. Bakelite

D. Decron

Answer: C



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4.

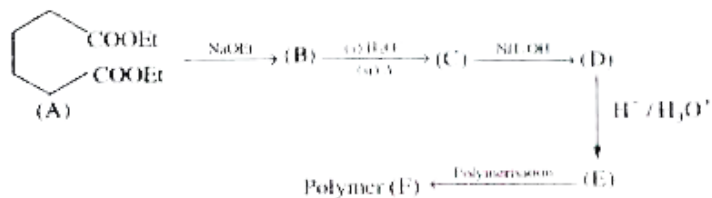
The conversion (A) to (B) is called

- A. Claisen ester condensation
- B. Dieckmann reaction
- C. Intermolecular claisen ester condensation
- D. Claisen - schmidt reaction

Answer: B

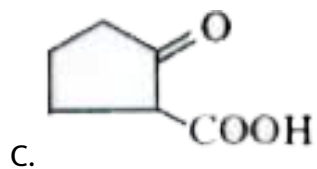
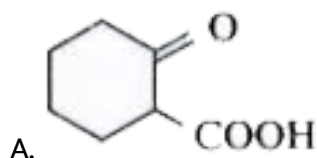


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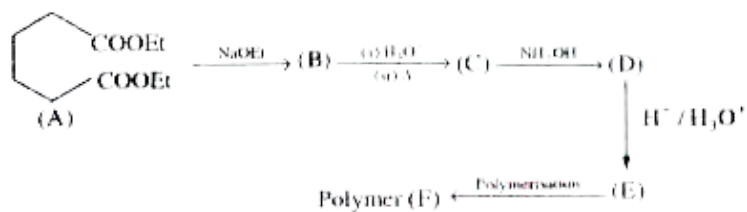
The compound (C) is



Answer: D

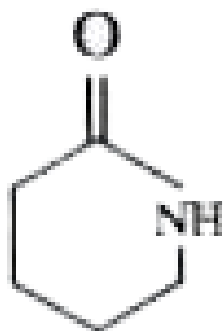
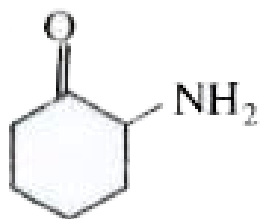


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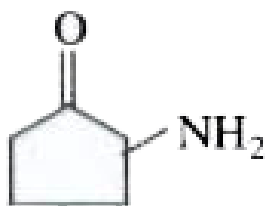
6.

Product (E) is





C.



D.

Answer: B



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Practice Sheet 3 Match The Following Questions

1. Match the following columns

List - I

- A) DOP
- B) O - cresyl phosphate
- C) Bakelite
- D) Cellulose

List - II

- p) Natural
- q) Plasticiser
- r) Synthetic polymer
- s) Thermosetting

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List-I

List-II

- (A) Benzoquinone (p) Free radical initiator
2. (B) CCl_4 and CBr_4 (q) Free radical intribitor
- (C) Benzoyl peroxide (r) Chain transfer agents
- (D) t-butyl peroxide (s) Biopolymerer

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Practice Sheet 3 Integer Answer Types Questions

1. The sum of fluorine atoms in monomers of PTFE and PCTFE is ____.

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2. The number of alternating Co-polymers in the following are , Nylon-6, Nylon-6,6, PET, Neoprene, Buna-S, polyisoprene, PTFE, PVC, Bakelite.



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3. The number of types of Co-polymers depend on the nature of distribution of two different monomers are _____.



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4. The ratio of ' π ' bond between monomer units of Buna - N is 0.3 x. What is x?



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5. A polymer has weight average molecular weight is 40% more than is number average molecular weight. Its PDI is equal to 0.7 x. What is x?



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6. The ratio between homopolymers and Co-polymers of the following compounds will be PVC, polystyrene, nylon-6, PCTFE, PTFE, Dynel, Vinylon, Saran, chloroprene, Polysioprene, PMMA, HDPE.



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Practice Sheet 4 Single Correct Questions

1. Monomers of nylon-2, 6 are ?

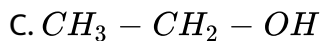
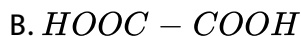
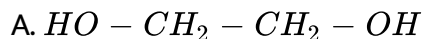
- A. alanine, 6 amino hexanoic acid
- B. Glycine, 5 amino hexanoic acid
- C. Glycine, 6 amino hexanoic acid
- D. Phenylalanine, 4 amino hexanoic acid

Answer: C



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2. Monomer of $(-CH_2 - CH_2 - O - CH_2 - CH_2 - O -)$



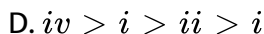
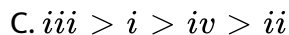
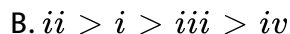
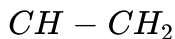
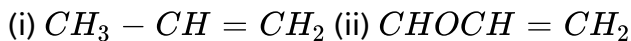
D.

Answer: D



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3. Arrange the following alkenes toward order of increasing reactivity in cationic polymerisation

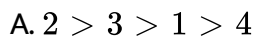
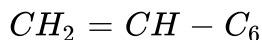


Answer: A



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4. Arrange the following alkenes towards order of increasing reactivity towards an ionic polymerization



B. $2 > 1 > 4 > 3$

C. $2 > 1 > 3 > 4$

D. $1 > 3 > 2 > 4$

Answer: A



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5. Which of the following is used to make paints and lacquers ?

A. Polystyrene

B. Polyvinyl chloride

C. Glyptal

D. Nylon

Answer: C



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6. What are the monomers in Kevlar ?

- A. terephthalic acid and P-phenylenediamine
- B. phthalic acid & phenylene diamine
- C. phthalic acid & m-diamino benzene
- D. terephthalic acid & n-diamino benzene

Answer: A



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7. What are the monomers in Nomex ?

- A. terephthalic acid and P-phenylenediamine
- B. phthalic acid & phenylene diamine
- C. phthalic acid & m-diamino benzene
- D. terephthalic acid & n-diamino benzene

Answer: C



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8. Which of the following used for preparation of bullet proof windows and safty (or) crash helments

- A. Kevlar
- B. Nomex
- C. Lexan
- D. None

Answer: C



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9. Which one of the following polymer contain -1,3 buta diene as one of the monomers ?

- A. ABS plastic
- B. SBR
- C. Saran
- D. Nitrile rubber

Answer: A



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10. Indicate the correct statement for chain growth polymers.

- A. Chain growth polymers are made by the addition of monomers to the end of the growing chain.
- B. The end of the chain is reactive because it is radical, a cation or an anion.
- C. Polystyrene is the example of this class
- D. None of the above

Answer: A::B::C



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11. Chain-growth polymerization may proceed by the following mechanism

A. condensation polymerization

B. cationic polymerization

C. Anionic polymerization

D. all of these

Answer: D



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12. Examples of chain-growth polymer is/are

A. Polystyrene

- B. nylon 6
- C. Teflon
- D. all of these

Answer: A::B::C::D



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13. Epoxy resin is

- A. prepared by the reaction of bisphenol A and epichlorohydrin followed by a hardener
- B. a cross linked polymer
- C. an epoxy adhesive
- D. all of these

Answer: A::B::C::D



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14. Which of the following polyamide polymers ?

- A. Kevlar
- B. Nomex
- C. Lexan
- D. Nylon - 6

Answer: A::B::D



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15. Which of the following can be used as plasticizers ?

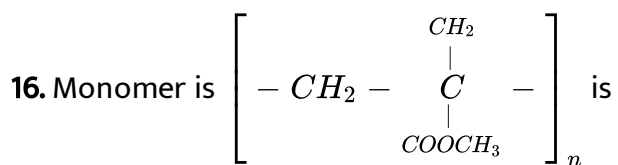
- A. Cresyl phthalate
- B. Diethyl phthalate
- C. Polystyrene

D. Trimethyl phosphate

Answer: A::B::D



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A. Methyl methyl acrylate

B. Styrene

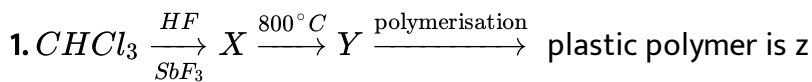
C. Propylene

D. Ethene

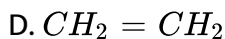
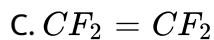
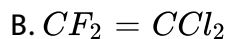
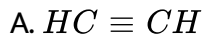
Answer: A



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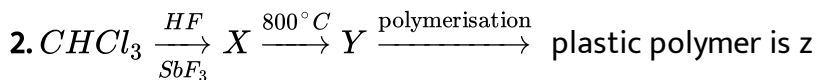
What is the Y ?



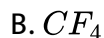
Answer: C



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What is X ?

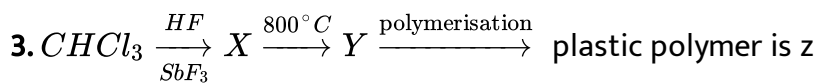


D. CF_2H_2

Answer: A



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What is Z ?

A. Teflon

B. Polyethene

C. PVC

D. Decron

Answer: A



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4. An ion catalysed polymerization occurs in case of vinyl monomers with electron withdrawing groups greater the stability of the carbanion intermediate more facile is the anionic polymerization

What is the anionic initiator in the following ?

A. butyl lithium

B. KNH_2

C. AlCl_3

D. A & B

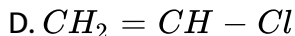
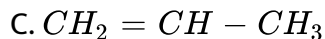
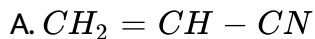
Answer: D



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5. An ion catalysed polymerization occurs in case of vinyl monomers with electron withdrawing groups greater the stability of the carbanion intermediate more facile is the anionic polymerization

Which of the following more reactive in an ionic polymerization ?



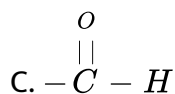
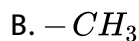
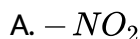
Answer: A



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6. An ion catalysed polymerization occurs in case of vinyl monomers with electron withdrawing groups greater the stability of the carbanion intermediate more facile is the an ionic polymerization

Which of the following vinyl substituted group more stabilizes the carbanion ?



D. C_2H_5 —

Answer: C



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Practice Sheet 4 Match The Following Questions

1. Match the following columns

List - I
(Catalyst)

- A) V_2O_5
- B) Ziegler-Natta
- C) Peroxide
- D) Finely divided Fe

List - II
(Industrial product)

- i) High density polyethylen
- ii) Polyacrylonitrile
- iii) NH_3
- iv) H_2SO_4

A. A-iv, B-i, C-ii, D-iii

B. A-iv, B-iii, C-ii, D-i

C. A-iii, B-i, C-ii, D-iv

D. A-iv, B-ii, C-i, D-iii

Answer: A



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2. Match the following columns

List - I
(Polymer)

- A) Kevlar
- B) Nomex
- C) Lexan
- D) Nylon-6

List - II
(Monomers)

- i) Phthalic acid and m-diamino benzene
- ii) terephthalic acid and p-phenylene diamine
- iii) diethyl carbonate and bisphenol-A
- iv) Caprolactum

A. A-iv, B-iii, C-ii, D-i

B. A-ii, B-i, C-iii, D-iv

C. A-iii, B-i, C-ii, D-iv

D. A-iv, B-ii, C-i, D-iii

Answer: B



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1. The total number of lone pairs of electrons in melamine



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2. How many of the following are biodegradable co-polymers ?

Nylon-2, Nylon-6, PHBV, PGA, PLA, melamine



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3. How many of the following are biodegradable homopolymers ?

PCL PHBV, Nylon-6, 6, PHB, Teflon, Bakelite



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4. In the following polymer of monomer having how many -OH and -COOH groups ?

PHB, PLA, PCL



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5. What are the oxidation states Al and Ti in the Zeigler - Natta catalyst ?



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6. In the polymer of Buna-S monomers are having how many π -bonds ?



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Practice Sheet 5 Single Answer Questions

1. Polystyrene is a

- A. addition polymer
- B. thermoplastic polymer
- C. both a and b

D. none

Answer: C



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2. Buna-s is a'

A. addition polymer

B. condensation polymers

C. both a & b

D. none of these

Answer: A



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3. Caprolactum polymerises to give

A. Nylon 6

B. Buna-s

C. Glyptal

D. Teflon

Answer: A



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4. Butyl rubber monomer units

A. Isobutyl+Isoprene

B. Isobutylene+Butadiene

C. butadiene + Isoprene

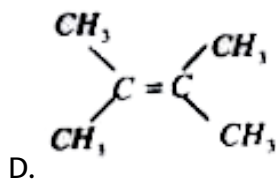
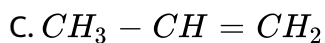
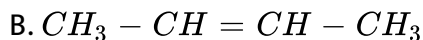
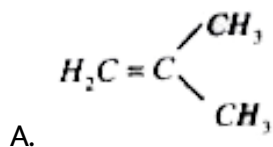
D. Isobutylene+Sodium polysulphide

Answer: A



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5. The monomer of the polymer $-CH_2 - \overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}} - CH_2 - \overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}} -$ is



Answer: A



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6. Plexiglass is a commercial name of

A. glyptal

- B. poly acrylnitrile
- C. polymethyl methacrylate
- D. polyethyl crylate

Answer: C



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7. Which of the following statement is not true ?

- A. natural rubber has the trans-configuration at every double bond
- B. Buna-s is a copolymer of butadiene and styrene
- C. Natural rubber is a, 1, 4 polymer of isoprene
- D. In vulcanization the formation of sulphur bridges b/w different chains make rubber harder and stronger

Answer: A



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8. In Buna-s, Buna stands for

- A. 1-butene
- B. n-butene
- C. 2-butene
- D. butadiene

Answer: D



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9. Di n-butyl phthalate is a

- A. plasticizer
- B. antibiotic
- C. natural rubber

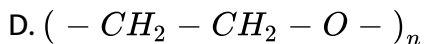
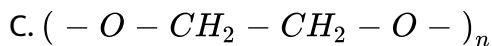
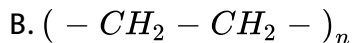
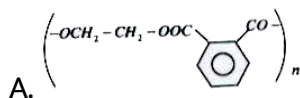
D. bio-degradable polymer

Answer: A



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10. In which of the following polymers ethylene glycol is one of the monomer units ?



Answer: A::C



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11. Terylene is prepared by condensing ethylene glycol with

- A. phthalic acid
- B. Isophthalic acid
- C. Terephthalic acid
- D. dimethyl terephthalate

Answer: C::D



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12. The correct functional group x and the reagent reaction conditions 'y'

in the following scheme are $X - (CH_2)_4 - C \xrightarrow[(ii) HOOC - (CH_2)_4 - COOH]{(i) Y}$

condensation polymer

- A. $X = COOCH_3, Y = H_2/Ni/heat$
- B. $X = CONH_2, Y = H_2/Ni/heat$
- C. $X = CONH_2, Y = Br_2/NaOH$

D. $X = \text{CN}$, $Y = \text{H}_2/\text{Ni}/\text{heat}$

Answer: A::B::C::D



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13. Hexamethelene diamine is monomer unit in

A. nylon 6,6

B. nylon 6,10

C. nylon 6

D. nylon 2,6

Answer: A::B



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14. Phenol gives polymers on condensation with formadehyde

A. bekelite

B. Novolac

C. melamine

D. nylon 6

Answer: A::B



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15. Glyptal polymer is obtained from phthalic acid by treating it with

A. malanic acid

B. glycerol

C. Maleic acid

D. ethylene glycol

Answer: B



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16. PCL polymer is a

- A. copolymers polymer
- B. Homo polymer
- C. condensation polymer
- D. addition polymers

Answer: B::C

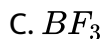
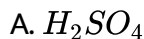


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Practice Sheet 5 Linked Comprehension Type Questions

1. These electron donating groups will be able to stabilize the chain carrying carbocation intermediate. Greater the stability of the carbocation intermediate, more facile is the cationic polymer

What is the following readily undergoes cationic polymerization ?



D. All

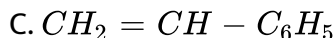
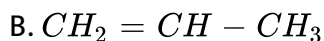
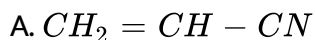
Answer: D



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2. These electron donating groups will be able to stabilize the chain carrying carbocation intermediate. Greater the stability of the carbocation intermediate, more facile is the cationic polymer

Which of the following readily undergoes cationic polymerization ?



D. None

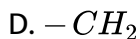
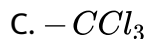
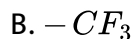
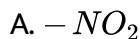
Answer: C



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3. These electron donating groups will be able to stabilize the chain carrying carbocation intermediate. Greater the stability of the carbocation intermediate, more facile is the cationic polymer

In presence which group readily undergo vinylic cationic polymerization ?



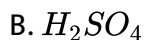
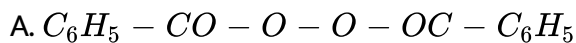
Answer: D



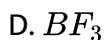
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4. In this polymerization reaction, growing polystyrene radical which normally would add on a polymer reacts with the chain transfer agent to end the original chain

What is the initiator in the vinyl free radical polymerization ?



C. Butyllithium



Answer: A



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5. In this polymerization reaction, growing polystyrene radical which normally would add on a polymer reacts with the chain transfer agent to end the original chain

Which of the following are inhibitors?

- A. phenols
- B. quinones
- C. amines
- D. all

Answer: D



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6. In this polymerization reaction, growing polystyrene radical which normally would add on a polymer reacts with the chain transfer agent to end the original chain

In presence of which group vinyllic free radical polymerization readily takes

- A. $-NO_2$
- B. $-CN$
- C. $-CF_3$

D. $-C_6H_5$

Answer: D



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Practice Sheet 5 Match The Following Questions

1. Match the following columns

List - I

- A) Cellulose
- B) Nylon-6, 6
- C) Protein
- D) Sucrose

List - II

- i) Natural polymer
- ii) Synthetic polymer
- iii) Amide linkage
- iv) Glycoside linkage

A. A-iv, B-iii, iv, C-ii, D-i

B. A-ii, B-i, iv, C-iii, D-iv

C. A-i, iv, B-ii,iii, C-i, iii, D-iv

D. A-iv, B-ii, iii C-i,D-iii

Answer: C



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2. Match the following columns

List - I

(Polymer)

- A) PGA
- B) PLA
- C) PCL
- D) Nylon-2-Nylon-6

List - II

(Monomers)

- i) Lactic acid
- ii) α -Hydroxy Hexanoic acid
- iii) Glycolic acid
- iv) Glycine and Amino Caproic acid

A. A-iv, B-iii, C-ii, D-i

B. A-ii, B-i, C-iii, D-iv

C. A-iii, B-i, C-ii, D-iv

D. A-iii, B-i, C-ii, D-iv

Answer: C



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Practice Sheet 5 Integer Answer Types Questions

1. How many of them are bio-degradable Ester linkage polymer

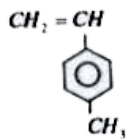
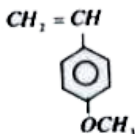
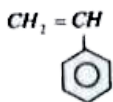
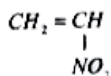
PHB, PHBV, PGA, Nylon-2,6, PCL

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2. How many number carbon atoms in perlon L monomer ?

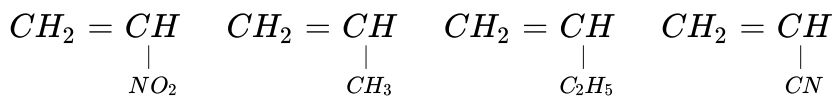
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3. How many of them are more reactive than $CH_2 = CH_2$ in the cationic polymerization ?



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4. How many of them are more reactive than $CH_2 = CH_2$ in the anionic polymerization

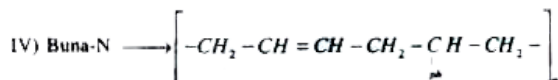
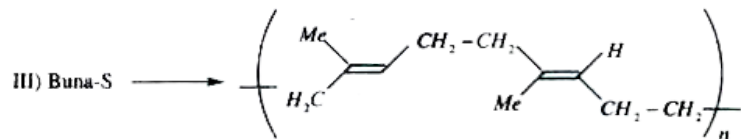
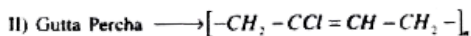
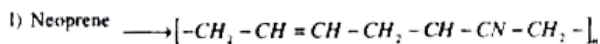


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5. How many of the following polymeric structures are correctly matched

(Polymer)

(Structure)



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6. The number of polymers having stronger intermolecular forces of attraction than Bakelite among the following is

(i) PTFE (ii) HDPE (iii) LDPE (iv) PVC (v) Dacron (vi) Rayon (vii) Vulcanized rubber (viii) Nylon -66



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1. How are the polymers classified based on heat treatment?



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2. What is crosslinking in polymers ?



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3. $Si(CH_3)_2Cl_2$ is hydrolysed. What type of polymer is formed ?



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4. A polymer is formed between ethylene dichloride and sodium disulphide. Discuss.



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5. Alternating copolymers are commonest copolymers. Comment



Watch Video Solution

6. What are plastics and plasticisers ?



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7. What is the ozonolysis derivative of natural rubber ?



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8. What are the differences between buna - Sand buna - N rubbers ?



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9. Write the order of intermolecular forces in neoprene, nylon 6 and PVC.

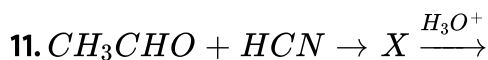


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10. Why the natural rubber is elastic ?



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Which type of polymer is formed from the organic compound Y?



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12. Suggest the structure of nylon 2-nylon 6.



[Watch Video Solution](#)

13. Write the main differences between the structures of starch and cellulose.



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14. How is PTFE familiar commercially?



[Watch Video Solution](#)

15. A vinyl polymer is a life saving substance as blood plasma. Write the empirical and structural formula of its monomer.



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16. How are the polymers classified based on heat treatment?



[Watch Video Solution](#)

17. What is crosslinking in polymers ?



[Watch Video Solution](#)

18. A polymer is formed between ethylene dichloride and sodium disulphide. Discuss.



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19. $Si(CH_3)_2Cl_2$ is hydrolysed. What type of polymer is formed ?



Watch Video Solution

20. Alternating copolymers are commonest copolymers. Comment



Watch Video Solution

21. What are plastics and plasticisers ?



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22. Classify the following polymers into various types based on their intermolecular forces.

- a) Neoprene
- b) Nylon-6, 6
- c) polystyrene
- d) Bakelite



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23. Write the order of intermolecular forces in neoprene, nylon 6 and PVC.



Watch Video Solution

24. Why is natural rubber elastic?



Watch Video Solution

25. Explain the difference between Buna -N and Buna-S .



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26. What is the ozonolysis derivative of natural rubber ?



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27. Suggest the structure of nylon 2-nylon 6.

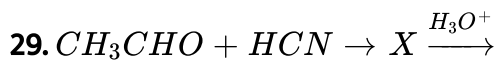


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28. Write the main differences between the structures of starch and cellulose.



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Which type of polymer is formed from the organic compound Y?



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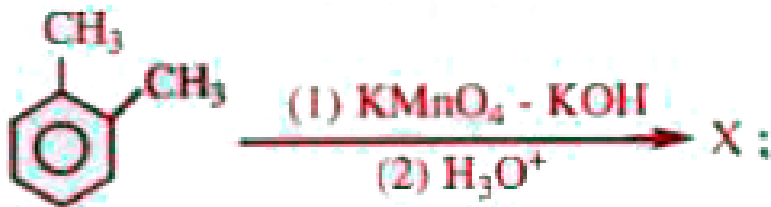


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31. How is PTFE familiar commercially?



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32.

What is the main use of the polymer formed by X and Y?

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Subjective Exercise 1 Short Answer Questions

1. What are polymers? How are they formed?

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2. How are polymers classified on the basis of structure ?

 Watch Video Solution

3. What are the classes of the polymer based on molecular forces ?



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4. What are addition polymers, condensation polymers, homopolymers and copolymers? Give examples.



[Watch Video Solution](#)

5. What are polymers? How are they formed?



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7. What are the classes of the polymer based on molecular forces ?



Watch Video Solution

8. What are addition polymers, condensation polymers, homopolymers and copolymers? Give examples.



Watch Video Solution

9. Discuss the mechanism and catalysts used in Cationic polymerisation and anionic polymerisation.



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Subjective Exercise 1 Very Short Answer Questions

1. Is $-\left[CH_2 - CH(C_6H_5) - \right]_n$ homopolymer or a copolymer ?



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2. Which of the following polymer is copolymer ?

- a) Polythene b) Buna-S
- c) Nylon 6, 6 d) Polyvinyl chloride



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3. Give any two examples for semi-synthetic polymers.



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4. From what type of monomers are cross-linked polymers formed ?



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5. Give an example of an addition polymer.



Watch Video Solution

6. Give an example of monomer in a condensation polymerization reaction.



Watch Video Solution

7. Is $-[CH_2 - CH(C_6H_5) -]_n$ homopolymer or a copolymer ?



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Subjective Exercise 2 Short Answer Questions

1. How is natural rubber isolated from vines and shaubs?



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2. Write on the structural clucidation of natural rubber.



Watch Video Solution

3. How are the physical properties of rubber improved by vulcanisation process?



Watch Video Solution

4. What are synthetic rubber ? Explain the preparation and uses of the following

i) Neoprene ii) Buna -N iii) Buna -S



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5. How is natural rubber isolated from vines and shaubs?



Watch Video Solution

6. Write on the structural clucidation of natural rubber.



Watch Video Solution

7. How are the physical properties of rubber improved by vulcanisation process?



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8. Discuss the preparation and uses of biodegradable polyesters.



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Subjective Exercise 2 Very Short Answer Questions

1. Define an elastomer.



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2. What is cross linking agent used in vulcanization ?



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3. Define an elastomer.



Watch Video Solution

4. What is cross linking agent used in vulcanization ?



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Subjective Exercise 3 Short Answer Questions

1. Write a note on the classification of carbohydrates. Mention the important polysaccharides.



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2. Structure of a polypeptide and its shape can be examined at four different levels. Discuss.



Watch Video Solution

3. What is the need of biodegradable polymers ? Write examples.



Watch Video Solution

4. Discuss the preparation and uses of biodegradable polyesters.



Watch Video Solution

5. Write a note on the classification of carbohydrates. Mention the important polysaccharides.



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7. What is the need of biodegradable polymers ? Write examples.



Watch Video Solution

8. Discuss the preparation and uses of biodegradable polyesters.



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Subjective Exercise 3 Very Short Answer Questions

1. Give the complete name for PHBV.



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2. Is $(NH - CHR - CO)_n$ a homopolymer or a copolymer?



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3. Write the name of monomers of the following polymers.

a) $[- - CO - (CH_2)_5 - N - -]_n$ b) $[- - CF_2 - CF_2 - -]_n$



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4. Explain secondary structure of a protein.



Watch Video Solution

5. What do you understand by a tertiary structure of protein ?



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6. What is the necessity for the preparation of biodegradable polymers ?



Watch Video Solution

7. What polymer is formed from glycollic acid ?



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8. What is the monomer of polyactic acid ? Give its structure.



Watch Video Solution

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Watch Video Solution

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[Watch Video Solution](#)

16. What is the monomer of polyactic acid ? Give its structure.



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Subjective Exercise 4 Short Answer Questions

1. Write the structures and uses of polythene, PVC, teflon, polystyrene and polymethyl methacrylate.



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2. What are the constituent monomers in the following polymers? Write their uses.

(a) Nylon 6,6 and (b) Terylene.



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3. Mention two synthetic polymers prepared using formaldehyde. Write their structures and uses.



Watch Video Solution

4. Write notes on different types molecular masses of polymers .



Watch Video Solution

5. How are the molecular masses of polymers experimentally determined?



Watch Video Solution

6. Write the structures and uses of polythene, PVC, teflon, polystyrene and polymethyl methacrylate.



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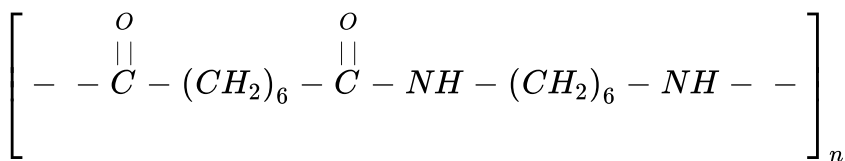
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Subjective Exercise 4 Very Short Answer Questions

1. Explain the difference between Buna -N and Buna-S .

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2. Name one monomer used in the polymer.



 [Watch Video Solution](#)

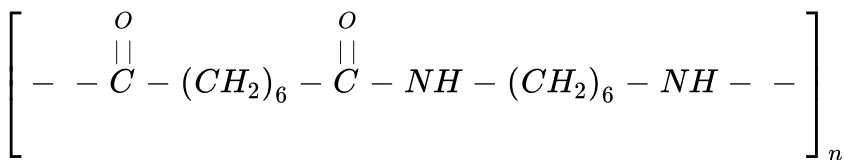
3. What are the most common type of molecular weights used in the case of polymers ?

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4. Explain the difference between Buna -N and Buna-S .

 Watch Video Solution

5. Name one monomer used in the polymer.



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6. What are the most common type of molecular weights used in the case of polymers ?



[Watch Video Solution](#)

Objective Exercise 1 Classification And Polymerisation Process

1. Which is an example of thermo setting polymer

A. Polythene

B. PVC

C. Neoprene

D. Bakelite

Answer: D



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2. Which of the following is a chain growth polymer

A. Nucleic acid

B. Polystyrene

C. Protein

D. Styrene

Answer: B



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3. Which of the following is incorrect

A. Polyethylene contains double bonds

B. The monomer used to make teflon is C_{F_4}

C. Condensation polymers are also known as step growth polymers.

D. A denatured protein could have the same primary structure as the active protein

Answer: A



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4. A co-polymer is one in which

- A. two monomers undergo condensation
- B. there is excessive cross linking
- C. extensive hydrogen bonding
- D. repeating unit contains two different monomers

Answer: D



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5. Natural polymer among the following is

- A. Cellulose
- B. PVC
- C. Teflon

D. Polyethylene

Answer: A



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6. Inorganic polymer among the following is

A. Rayon

B. Starch

C. Silicone rubber

D. Natural rubber

Answer: C



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7. Thermoplastic polymer among the following is

- A. Bakelite
- B. Urea formaldehyde resin
- C. Polysiloxanes
- D. PVC

Answer: D



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8. Polymerization of iso butene is mostly initiated by

- A. a cation
- B. a free radical
- C. an anion
- D. Zwitter ion

Answer: A



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9. In which one of the following type of polymerization generally no initiator is required

- A. Cationic polymerization
- B. Anionic polymerization
- C. Free radical polymerization
- D. Condensation polymerization

Answer: D



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10. The catalyst used for the polymerisation of olefins is

- A. Ziegler natta catalyst
- B. Wilkinson's catalyst
- C. pd-catalyst

D. Zeise's salt catalyst

Answer: A



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11. Terylene is

- A. An addition polymer with a benzene ring in every repeating unit
- B. A condensation polymer with benzene ring in every repeating unit
- C. An addition polymer with two carbon atoms in every repeating unit
- D. A condensation polymer with two nitrogen atoms in every repeating unit

Answer: B



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12. Monomers are converted to polymers by

- A. Hydrolysis of monomers
- B. Condensation reaction between monomers
- C. Protonation of monomers
- D. None of these

Answer: B



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13. Statement 1 : The order of extent of attractive forces between monomers is fibres > thermoplastic polymers > elastomers

Statement II : Thermoplastic polymers become soft on heating

Statement III : Thermosetting polymers become hard on heating Correct statement is/are

- A. All

B. Only II

C. Only I, III

D. Only I

Answer: A



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14. Which of the following is an example of condensation polymer (or)

Which of the following is not an example of addition polymer

A. Polythene

B. PVC

C. Orlon

D. Terylene

Answer: D



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15. Which among the following is a semi synthetic polymer.

- A. Cellulose rayon
- B. Acrylonitrile
- C. Cellulose nitrate
- D. Both 1 & 3

Answer: D



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16. Linear polymer among the following is

- A. Melamine
- B. Starch
- C. Bakelite
- D. Polyvinylchloride

Answer: D



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17. Which among the following is a branched chain polymer.

A. LDPE

B. Nylon

C. Phenol formaldehyde resin

D. Terylene

Answer: A



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18. Cross linked polymer among the following is

A. Polythene

B. LDPE

C. Melamine formaldehyde resin

D. Nylon 6,6

Answer: C



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19. Elastomers among the following are

A. Buna-N

B. Buna-S

C. Neoprene

D. All

Answer: D



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Objective Exercise 1 Natural Rubber

1. The process involving heating of rubber with sulphur is called

- A. Galvanisation
- B. Vulcanisation
- C. Bessemerisation
- D. Sulphonation

Answer: B



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2. Rubber latex is which type of emulsion

- A. oil in oil
- B. water in oil
- C. oil in water

D. solid in water

Answer: C



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3. Natural rubber is a polymer of (or) the monomer of natural polymer rubber is

A. Butadiene

B. Ethyne

C. Isoprene

D. Styrene

Answer: C



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4. Natural rubber is

- A. condensation polymer
- B. Addition polymer
- C. Coordination polymer
- D. All

Answer: B



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5. The vulcanized rubber has

- A. high water absorbing tendency
- B. low elasticity
- C. high sensitivity to heat treatment
- D. high resistance to chemical oxidation

Answer: D



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6. Natural rubber is a

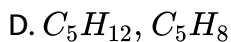
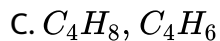
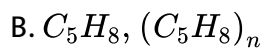
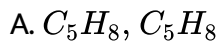
- A. Trans isomer
- B. cis isomer
- C. contains equal amounts of cis and trans isomers
- D. racemic mixture

Answer: B



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7. Empirical formula and molecular formula of monomer of natural rubber are respectively



Answer: A



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8. The synthetic polymer which resembles natural rubber is

A. Neoprene

B. Buna - S

C. Nylon

D. Rayon

Answer: A



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Objective Exercise 1 Bio Degradable Polymers

1. Which of the following is not a natural polymer

- A. Cellulose
- B. Protein
- C. PVC
- D. Nucleic acid

Answer: C



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2. Which of the following is not a polymer

- A. Silk
- B. DNA

C. DDT

D. Dextrin

Answer: C



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3. A linear product of phenol and formaldehyde is used

A. In paints

B. In explosives

C. gears

D. In alestils

Answer: C



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4. Which of the following is a polymer containing nitrogen

- A. Terylene
- B. polythane
- C. PVC
- D. Nylon

Answer: D



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5. In elastomers intermolecular forces are

- A. weak
- B. strong
- C. very strong
- D. nil

Answer: A



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6. Which of the following is a biodegradable polymer

A. Cellulose

B. Polythene

C. PVC

D. Nylon 6

Answer: A



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7. Polymer used in making capsules

A. Poly glycolic acid

- B. Poly lactic acid
- C. Nylon-2-Nylon-6
- D. PHBV

Answer: D



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Objective Exercise 1 Commercially Important Polymers

1. The raw materials used in Nylon - 6 is

- A. Adipic acid
- B. Phthalic acid
- C. Ethylene glycol
- D. Caprolactam

Answer: D



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2. A polymer commonly used for making nonstick cookware is

- A. SBR
- B. Teflon
- C. PVC
- D. Poly ethyl acrylate

Answer: B



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3. Nylon threads are made of

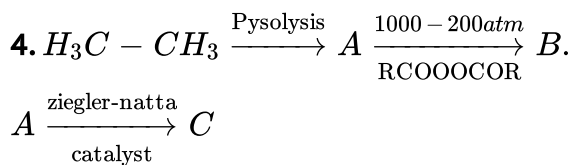
- A. Polyethylene polymer
- B. Polyvinyl polymer
- C. Polyester polymer

D. Polyamide polymer

Answer: D



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Here B and C are respectively

A. LDPE, HDPE

B. HDPE, LDPE

C. LDPE, LDPE

D. HDPE, HDPE

Answer: A



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5. The polymer used in the manufacture of electrical goods such as switches,plugs etc is

A. Polythene

B. Bakelite

C. Neoprene

D. PHBV

Answer: B



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6. During the polymerization of ethylene hybridization of 'C' changes from ___ to ___

A. sp^2 , sp

B. sp^2 , sp^3

C. sp , sp^2

D. sp^3 , sp^2

Answer: C



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7. In the name Nylon - 6, 6, the numbers 6,6 represents

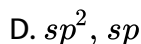
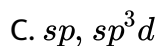
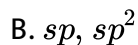
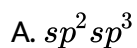
- A. the number of monomer molecules from which the polymer formed
- B. types of monomers from which the polymer formed
- C. number of carbon atoms present in the two types of monomers' from which the polymer formed
- D. number of oxygen atoms present in the two types of monomers from which the polymer formed

Answer: B



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8. When acetylene passed through red hot Fe tube hybridization of C changes from to



Answer: B



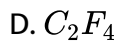
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9. Orlon is a polymer of

A. Styrene

B. Acrylonitrile

C. Vinyl chloride

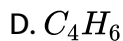
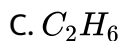
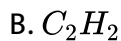
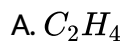


Answer: B



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10. Which one of the following cannot be used as monomer in a polymerization reaction



Answer: C



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11. Catalyst used in the polymerisation of ethylene is

A. Ag

B. O_2

C. Ni

D. $Pd + BaSO_4$

Answer: B



Watch Video Solution

12. The catalyst used in the manufacture of SBR

A. Pt

B. Ni

C. Coke

D. Na

Answer: D



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13. Characteristic property of teflon is

- A. 2000 poise viscosity
- B. high surface tension
- C. non - inflammable and resistant to heat
- D. high reactive

Answer: C



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14. Which compound/set of compounds is used in the manufacture of Nylon-6,6?

- A. hexamethylene diamine and ethylene glycol
- B. adipic acid and ethylene glycol
- C. adipic acid and hexamethylene diamine
- D. dimethyl terephthalate and ethylene glycol

Answer: C



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15. Terylene is the polymer of

- A. Ethylene glycol and terephthalic acid
- B. Melamine and formaldehyde
- C. Vinyl chloride and formaldehyde
- D. hexamethylene diamine and adipic acid

Answer: A



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16. PVC is used for

- A. Manufacture of cosmetics
- B. Manufacture of tyres
- C. Manufacture of non-stick pans
- D. Manufacture of plastic pipes

Answer: D



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17. Which of the following has ester linkage

- A. Nylon-6,6
- B. PVC
- C. Terylene

D. SBR

Answer: C



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18. The synthetic polymer which resembles natural rubber is

A. Neoprene

B. PMMA

C. Glyptal

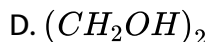
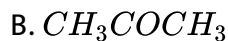
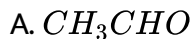
D. Nylon

Answer: A



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19. Bakelite is obtained from phenol by reacting with



Answer: C



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Objective Exercise 1 Assertion And Reason Type

1. (A): Styrene is more reactive than propylene towards cationic polymerization.

(R): The carbocation resulting from styrene is more stable than that resulting from propylene.

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: A



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2. (A) : Natural rubber is polyisoprene.

(R): Natural rubber gives 2-methyl 1, 3 butadiene when it is heated to high temperature in the absence of air.

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: A



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3. (A): Molecular mass of polymers is always expressed as an average.

(R) : Generally, a polymer sample contains chains of varying lengths.

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: A



Watch Video Solution

4. (A): $F_2C = CF_2$, is the monomer of teflon.

(R): Polytetrafluoroethylene is commonly called teflon.

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: B



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5. (A): The chains of nylon-6, 6 are held by hydrogen bonding forces.

(R): Intermolecular hydrogen bonding leads to molecular association.

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: B



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6. (A) : Natural rubber and gutta percha are examples of cis-trans isomers.

(R) : Cis-trans isomerism arises due to the difference of geometrical arrangement of two different groups on the double bonded carbon atoms.

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: A



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7. (A): Styrene is more reactive than propylene towards cationic polymerization.

(R): The carbocation resulting from styrene is more stable than that resulting from propylene.

- A. Both A & R are true, R is the correct explanation of A
- B. Both A & R are true, R is not correct explanation of A
- C. A is true, R is false
- D. A is false, R is true

Answer: A



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8. (A): Nylon-6 is obtained by polymerization of caprolactam.

(R): Nylon-6 is a polyamide.

- A. Both A & R are true, R is the correct explanation of A
- B. Both A & R are true, R is not correct explanation of A
- C. A is true, R is false
- D. A is false, R is true

Answer: B

9. (A) : Molecular mass of polymers is always expressed as an average

(R) : Generally, a polymer sample contains chains of varying lengths

A. Both A & R are true, R is the correct explanation of A

B. Both A & R are true, R is not correct explanation of A

C. A is true, R is false

D. A is false, R is true

Answer: A

10. (A): Management of polymer solid waste created acute environmental problems

(R): In general polymer resist the natural degradation process.

- A. Both A & R are true, R is the correct explanation of A
- B. Both A & R are true, R is not correct explanation of A
- C. A is true, R is false
- D. A is false, R is true

Answer: A



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Objective Exercise 2

1. Which of the following is fully fluorinated polymer

- A. Neoprene
- B. Teflon
- C. Thiokol
- D. PVC

Answer: B



Watch Video Solution

2. Polymer formation from monomers starts by

- A. Condensation reaction between monomers
- B. Co-ordination reaction between monomers
- C. Conversion of monomer to monomer ions by protons
- D. Hydrolysis of monomers

Answer: A



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3. In the polymerization of acrylonitrile, most commonly used initiator is

- A. a cation

- B. an anion
- C. a free radical
- D. Zwitter ion

Answer: B



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4. Correct statement among the following is

- A. All macromolecules are polymers
- B. Physical and mechanical properties of a polymer are similar to its monomer
- C. Majority of bonds in polymer molecule are covalent
- D. Vitamins are polymers

Answer: A



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5. Initiators that can be used in cationic polymerization is/are

(a) KNH_2 (b) H_2SO_4

(c) BF_3 with little amount of H_2O (d) t-butyl peroxide

The correct answer is

A. All are correct

B. only 1

C. only 2 and 3

D. only 1 and 4

Answer: C



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6. Which of the following is elastomer

A. Buna- N

B. Buna -S

C. Neoprene

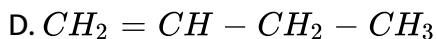
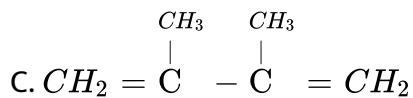
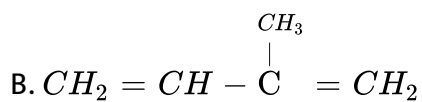
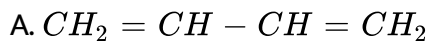
D. All

Answer: D



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7. Natural rubber is a polymer of

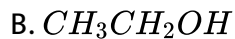
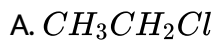


Answer: B



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8. Which of the following can be used as monomer in polymerisation reaction



Answer: D



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9. An example of natural biopolymer is

A. Teflon

B. Nylon-6,6

C. Rubber

D. DNA

Answer: D



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10. Common monomer in glyptal and terylene is

A. Ethylene glycol

B. Phthalic acid

C. Phenol

D. Formaldehyde

Answer: A



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11. Which of the following polymer has the empirical formula identical with that of its monomer

- A. Teflon
- B. Nylon - 6,6
- C. Dacron
- D. Bakelite

Answer: A



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12. Which among the following is a chain growth polymer

- A. Nylon
- B. Bakelite
- C. Terylene
- D. Teflon

Answer: D



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13. Monomers of which one of the following biodegradable polymer are amino acids

A. Polyglycolic acid

B. PHBV

C. Nylon-6

D. Nylon-2-Nylon-6

Answer: D



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14. Which among the following is a step growth polymer

- A. PTFE
- B. PVC
- C. polyster
- D. Polyethylene

Answer: C



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15. Which of the following is a biodegradable polymer?

- A. Polythene
- B. Bakelite
- C. PHBV
- D. PVC

Answer: C



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16. The monomer of poly acrylonitrile is

- A. Vinyl chloride
- B. Vinyl alcohol
- C. Vinyl cyanide
- D. Adipic acid

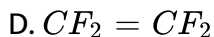
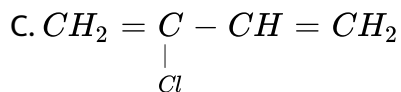
Answer: C



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17. Which of the following monomers gives the polymer neoprene on polymerisation?

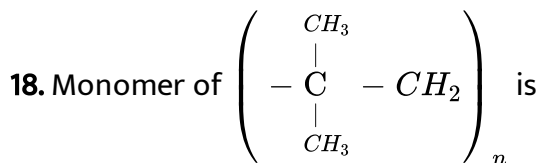
- A. $CH_2 = CHCl$
- B. $Cl_2C = CCl_2$



Answer: C



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A. 2-methyl propene

B. Styrene

C. Propylene

D. Ethene

Answer: A



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19. BuNa - N is a polymer of

- A. Butadiene
- B. Butadiene and sodium acetanilide
- C. Butadiene and styrene
- D. Butadiene and vinyl cyanide

Answer: D



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20. Thermoplastics are

- A. Linear polymers
- B. Soften or melt on heating
- C. Molten polymer can be moulded in desired shape
- D. All

Answer: D



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21. Which of the following can not be grouped as polyolefin ?

A. polyethene

B. polypropene

C. polystyrene

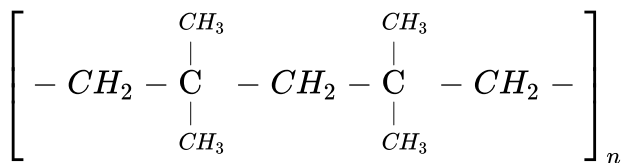
D. bakelite

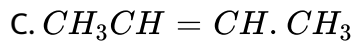
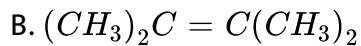
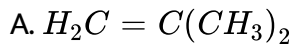
Answer: D



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22. The monomer of the polymer





Answer: A



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23. Which of the following polymer is an example of fibre ?

A. Silk

B. Dacron

C. Nylon 66

D. All of these

Answer: D



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24. Terylene is a

- A. Polyamide
- B. Polyester
- C. Polyethen
- D. Lonchain hydrocarbon

Answer: B



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25. $-[NH - (CH_2)_6 - NH - CO - (CH_2)_4 - CO]_n -$

- A. Homo polymer
- B. Co-polymer & Nylon-6,6
- C. Addition polymer

D. Thermosetting polymer

Answer: B



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26. Nylon-6 is not a

A. Condensation polymer

B. Polyamide

C. Copolymer

D. Homopolymer

Answer: C



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27. Which of the following is not correct regarding terylene ?

- A. Step growth polymer
- B. Synthetic fibre
- C. Condensation polymer
- D. Thermosetting plastic

Answer: D



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28. PVC is prepared by the polymerisation of

- A. Ethylene
- B. 1 - Chloro propene
- C. Propene
- D. Chloroethene

Answer: D



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29. 1, 3-Butadiene and styrene on polymerisation give

A. Bakelite

B. Terylene

C. Buna-S

D. Teflon

Answer: C



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30. Which of the following is fully fluorinated polymer

A. Neoprene

B. Teflon

C. Thiokol

D. PVC

Answer: B



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31. Polymer formation from monomers starts by

- A. Condensation reaction between monomers
- B. Co-ordination reaction between monomers
- C. Conversion of monomer to monomer ions by protons
- D. Hydrolysis of monomers

Answer: A



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32. Correct statement among the following is

- A. All macromolecules are organic polymers
- B. Physical and mechanical properties of a polymer are similar to its monomer
- C. Majority of bonds in polymer molecule are covalent
- D. Vitamins are polymers

Answer: C



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33. In the polymerization of acrylonitrile, most commonly used initiator is

- A. A cation
- B. An anion
- C. A free radical
- D. Zwitter ion

Answer: B



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34. Which of the following is elastomer

A. Buna-N

B. Buna -S

C. Neoprene

D. All

Answer: D



[Watch Video Solution](#)

35. Initiators that can be used in cationic polymerization is/are

(a) KNH_2 (b) H_2SO_4

(c) BF_3 with little amount of H_2O (d) t-butyl peroxide

The correct answer is

A. All are correct

B. Only a

C. Only b and c

D. Only a and d

Answer: C



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36. Which of the following statements about terylene are correct ?

A) It is a poly ester

B) It is obtained by the reaction between ethylene glycol and terephthalic acid

C) It is a condensation polymer

D) It is a natural polymer

A. A and B

B. C and D

C. A, B and C

D. A, B and D

Answer: C



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37. Which of the following is an example of co-polymer ?

A. PTFE

B. Perlon-L

C. Neoprene

D. PET

Answer: D



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38. Vinyl polymers are also known as

- A) Additional polymers
- B) Chain reaction polymers
- C) Condensation Polymers

The correct answer is

- A. A only
- B. B only
- C. A and B
- D. A, B and C

Answer: C



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39. Chain initiation and chain propagation steps are involved in

- a) Cationic polymerization
- b) Anionic polymerization

Free radical polymerization

d) Condensation polymerization

The correct answer is

A. All

B. Only a, b and c

C. Only a

D. Only a and c

Answer: B



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40. IUPAC names of monomers in Nylon-6,6 are

A. Ethylene glycol, terephthalic acid

B. Adipic acid, hexamethylenediamine

C. Butane dionic acid, Hexane 1, 6-diamine

D. Hexanedioic acid, Hexane-1, 6-diamine

Answer: D



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41. Which one of the following polymer can be softened and hardened repeatedly on heating and cooling without change in its property ?

A. Bakelite

B. Polysiloxane

C. Urea formaldehyde resin

D. PVC

Answer: D



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42. Vinyl derivatives undergo which type of polymerization

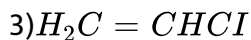
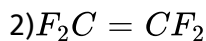
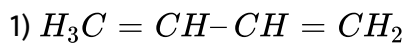
- A. cationic polymerization only
- B. anionic polymerization only
- C. condensation polymerization only
- D. cationic (or) anionic (or) free radical polymerization

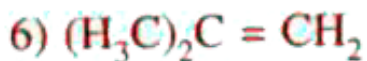
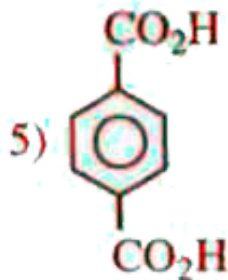
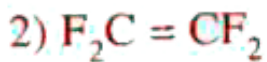
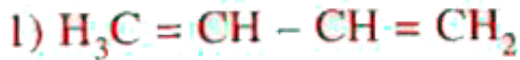
Answer: D



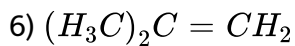
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43. Identify from the following the monomers which undergo condensation polymerization





4)



A. 3, 5

B. 1, 3

C. 1, 6

D. 4, 5

Answer: D



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44. Which one of the following statements is not correct ?

- A. Nylon 6, 6 is an example for fibre
- B. Polvisonrene is synthetic rubber
- C. PLOYvinyl chloride is a thermoplastic
- D. Backlite is a thermoplastic polymer

Answer: B



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45. $(CH_3)_3SiCl$ is used during polymerization of organosilicons because

- A. The chain length of organosilicon polymers can be controlled by adding $(CH_3)_3SiCl$
- B. $(CH_3)_3SiCl$ improves the quality and yield of the polymer
- C. $(CH_3)_3SiCl$ does not block the end terminal of silicone polymer
- D. $(CH_3)_3SiCl$ acts as a catalyst during polymerisation

Answer: A



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46. Natural rubber on ozonolysis gives

- A. 4-oxopentanal
- B. 3-oxopentanal
- C. Hexane-2, 5-diene
- D. Pentanedial

Answer: A



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47. During the vulcanization of rubber, sulphur cross linking occurs at

- a) Double bonds
- b) Allylic - CH_2 - groups

c)Methyl groups

The correct answer is

- A. only a
- B. only b
- C. only a and b
- D. all

Answer: C



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48. Which among in following is a chain growth polymer

- A. Nylon
- B. Bakelite
- C. Terylene
- D. Teflon

Answer: D



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49. Which of the following polymer has the empirical formula identical with that of its monomer

A. Teflon

B. Nylon-6,6

C. Dacron

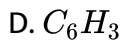
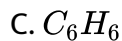
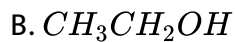
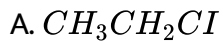
D. Bakelite

Answer: B



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50. Which of the following can be used as monomer in polymerization reaction



Answer: D



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51. An example of natural biopolymer is

A. Teflon

B. Nylon-6, 6

C. Rubber

D. DNA

Answer: D



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52. Common monomer in glyptal and terylene is

- A. Ethylene glycol
- B. Phthalic acid
- C. Phenol
- D. Formaldehyde

Answer: A



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53. BuNa - N is a polymer of

- A. Butadiene
- B. Butadiene and sodium acetanilide
- C. Butadiene and styrene

D. Butadiene and vinyl cyanide

Answer: D



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54. Wrong statement about the polymer BuNa - S is

- A. 'Bu' stands for 1, 3 butadiene
- B. 'Na' stands for sodium (catalyst)
- C. 'S' stands for styrene
- D. it is used in manufacture of hoses

Answer: D



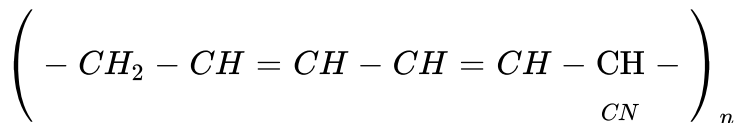
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55. Wrong statement about BuNa N is

A. it is copolymer

B. 'N' stands for propenenitrile

C. its structure is



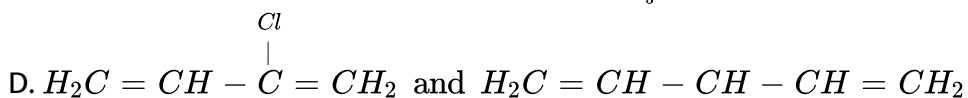
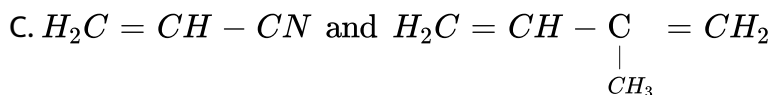
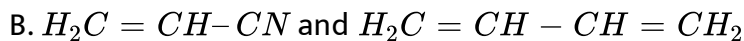
D. it is an addition polymer

Answer: C



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56. Buna -N synthetic rubber is a copolymer of :



Answer: B



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57. Which of the following is not true ?

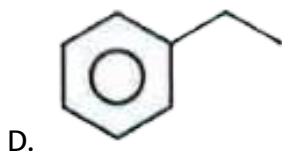
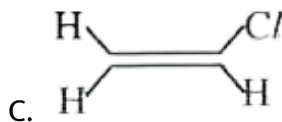
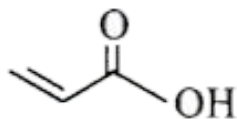
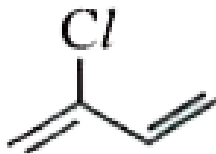
- A. In vulcanisation the rubber becomes harder and stronger
- B. Natural rubber has 'trans' configuration at every double bond.
- C. Buna-S is a co-polymer of Butene and styrene
- D. Natural rubber is 1, 4- polymer of isoprene.

Answer: B



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58. Identify the monomer used in the preparation of synthetic rubber



Answer: A



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59. Monomers of which one of the following biodegradable polymer are amino acids

A. Polyglycolic acid

B. PHBV

C. Nylon - 6

D. Nylon - 2- Nylon-6

Answer: D



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60. Which among the following is a step growth polymer

A. PTFE

B. PVC

C. Polyster

D. Polyethylene

Answer: C



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61. Which of the following is a biodegradable polymer?

A. Polythene

B. Bakelite

C. PHBV

D. PVC

Answer: C



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62. Which of the following is a biodegradable polymer

A) PHBV

B) Buna-S

C) PMMA

D) Nylon -2-Nylon-6

The correct answer is

A. A, B and C

B. B, C and D

C. A and D

D. All are correct

Answer: C



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63. For natural polymers PDI is generally

A. 1

B. 10

C. 100

D. 1000

Answer: A



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64. The poly dispersity index of a polymer is 1.5. If its number average molecular mass is 30,000 calculate its weight average molecular mass

A. 100 mass.

B. 40000

C. 20000

D. 45000

Answer: C

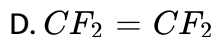
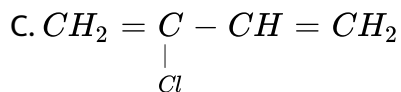


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65. Which of the following monomers gives the polymer neoprene on polymerisation ?

A. $CH_2 = CHCl$

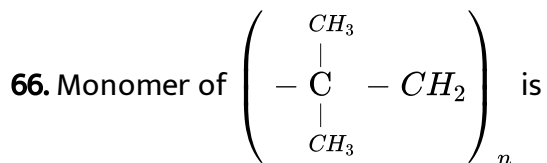
B. $Cl_2C = CCl_2$



Answer: C



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A. 2-methyl propene

B. Styrene

C. Propylene

D. Ethene

Answer: A



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67. The monomer of poly acrylonitrile is

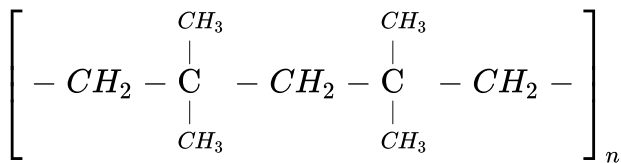
- A. Vinyl chloride
- B. Vinyl alcohol
- C. Vinyl cyanide
- D. Adipic acid

Answer: D



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68. The monomer of the polymer



- A. $H_2C = C(CH_3)_2$
- B. $(CH_3)_2C = C(CH_3)_2$
- C. $CH_3CH = CH \cdot CH_3$



Answer: A



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69. Which of the following can not be grouped as polyolefin ?

A. Polyethene

B. Polypropene

C. Polystyrene

D. Bakelite

Answer: D



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70. Which of the following polymer is an example of fibre

- A. Silk
- B. Dacron
- C. Nylon 66
- D. All of these

Answer: D



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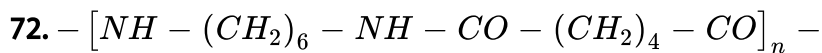
71. Terylene is

- A. Polyamide
- B. Polyester
- C. Polyethen
- D. Lonchain hydrocarbon

Answer: B



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- A. Homo polymer
- B. Co-polymer & Nylon-6,6
- C. Addition polymer
- D. Thermosetting polymer

Answer: B



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73. Nylon-6 is not a

- A. Condensation polymer
- B. Polyamide
- C. Copolymer

D. Homopolymer

Answer: C



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74. Which of the following is not correct regarding terylene

- A. Step growth polymer
- B. Synthetic fibre
- C. Condensation polymer
- D. Thermosetting plastic

Answer: D



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75. The monomer for polystyrene is

A. Ethane

B. Ethene

C. Ethyne

D. Vinyl benzene

Answer: D



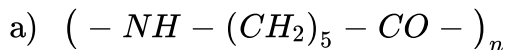
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76.

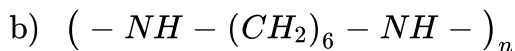
List - I (polymer)

List - II (Structure)

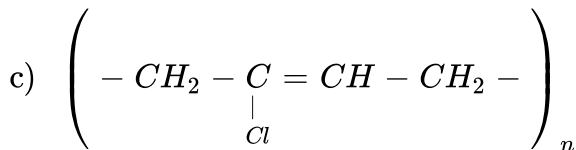
1) Urea formaldehyde resin



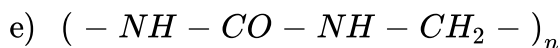
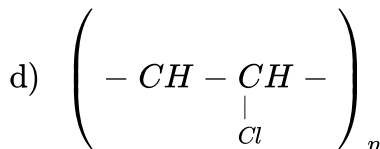
2) Neoprene



3) PVC



4) Nylon - 5



A. $\frac{1}{e} \frac{2}{d} \frac{3}{c} \frac{4}{b}$

B. $\frac{1}{e}$ $\frac{2}{c}$ $\frac{3}{d}$ $\frac{4}{b}$

C. $\frac{1}{a}$ $\frac{2}{c}$ $\frac{3}{d}$ $\frac{4}{b}$

D. $\frac{1}{e}$ $\frac{2}{c}$ $\frac{3}{d}$ $\frac{4}{a}$

Answer: D



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List - I (polymer)

1) Urea formalde hyde resin

77. 2) Nylon - 6

3) Polystyrene

4) GRN

List - II (use)

a) Unbreakable cups

b) TV cabinets

c) Oils seals

d) Tyre cords

A. $\frac{1}{a}$ $\frac{2}{d}$ $\frac{3}{b}$ $\frac{4}{c}$

B. $\frac{1}{a}$ $\frac{2}{b}$ $\frac{3}{d}$ $\frac{4}{c}$

C. $\frac{1}{a}$ $\frac{2}{b}$ $\frac{3}{c}$ $\frac{4}{d}$

D. $\frac{1}{d}$ $\frac{2}{c}$ $\frac{3}{b}$ $\frac{4}{a}$

Answer: A



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78. Amide linkage is absent in

- A. Nylon - 6
- B. Nylon 66
- C. Nylon 2- Nylon 6
- D. PHBV

Answer: D



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List - I

A) Phenol + CH_2O

79. B) Terephthalic acid and ethylene glycol

C) Caprolactum

D) Butadiene and styrene

List - II

1) Synthetic rubber

2) Bakelite

3) Nylon - 6

4) Terylene

A.

A	B	C	D
2	3	4	1

- B. $\begin{matrix} A & B & C & D \\ 3 & 1 & 2 & 4 \end{matrix}$
- C. $\begin{matrix} A & B & C & D \\ 2 & 4 & 3 & 1 \end{matrix}$
- D. $\begin{matrix} A & B & C & D \\ 1 & 2 & 3 & 4 \end{matrix}$

Answer: C



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80.

List - I	List - II
A) PHBV	1) Synthetic fibres
B) Teflon	2) Orthopaedic devices
C) Nylon - 66	3) For making laminates
D) Bakelite	4) non - sticking utensils
	5) Automobie tyres

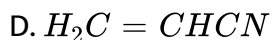
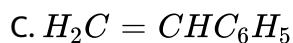
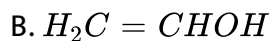
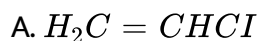
- A. $\begin{matrix} A & B & C & D \\ 2 & 4 & 1 & 3 \end{matrix}$
- B. $\begin{matrix} A & B & C & D \\ 1 & 3 & 2 & 4 \end{matrix}$
- C. $\begin{matrix} A & B & C & D \\ 3 & 2 & 1 & 5 \end{matrix}$
- D. $\begin{matrix} A & B & C & D \\ 4 & 1 & 3 & 2 \end{matrix}$

Answer: A



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81. Acrylonitrile is the other name of



Answer: D



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82. Which of the following is relation stiff and hard addition homopolymer ?

A. Melamine-formaldehyde

B. Bekalite

C. Polypropylene

D. Urea-formaldehyde

Answer: C



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83. Identify the addition polymers from the following

(i) Terylene

(ii) Polypropene

(iii) Polyacrylonitrile

(iv) Nylon 6

(v) Polyvinyl chloride

A. (ii), (iii), (v)

B. (ii), (iv)

C. (i), (iv)

D. (i), (ii)

Answer: A



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84. The monomers present in glyptal are

- A. Ethylene glycol, caproic acid
- B. Vinyl chloride, terephthalic acid
- C. Ethylene glycol, phthalic acid
- D. Urea, formaldehyde

Answer: C



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85. Which of the following is currently used as a tyre cord

- A. Terylene

B. Polyethylene

C. Bakelite

D. Nylon-6

Answer: D



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86. PVC is prepared by the polymerisation of

A. Ethylene

B. 1 - Chloro propene

C. Propene

D. Chloroethene

Answer: D



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87. 1, 3-Butadiene and styrene on polymerisation give

A. Bakelite

B. Terylene

C. Buna-S

D. Teflon

Answer: C



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Practice Exercise

1. Identify the one which does not belong to the same class as other three

A. Terylene

B. Polythene

C. Teflon

D. PVC

Answer: A



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2. Which one of the following is a polyamide ?

A. Teflon

B. Nylon-6,6

C. Terylene

D. Bakelite

Answer: B



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3. Initiators that can be used in anionic polymerisation is/are

(a) Potassium amide (b) n-butyl lithium (c) $AlCl_3$ (d) H_2SO_4

The correct answer is

A. only a

B. only a and b

C. only c and d

D. all a, b, c and d

Answer: B



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4. Which one of the following types of monomers, mostly undergo cationic polymerization ?

A. Vinyl monomers with electron donating group

B. Vinyl monomers with electron withdrawing group

C. Poly functional group monomers

D. Saturated hydrocarbons

Answer: A



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5. In Elastin, intermolecular forces are

A. Nil

B. Weak

C. Strong

D. Very strong

Answer: B



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6. Polyethylene is

- A. Random copolymer
- B. Homopolymer
- C. Alternate copolymer
- D. Cross linked copolymer

Answer: B



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7. Natural rubber is which type of polymer

- A. Condensation polymer
- B. Addition polymer
- C. Coordination polymer
- D. None of these

Answer: B



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8. Natural rubber is a

- A. Polydiyne
- B. Polyamide
- C. Polyester
- D. Polydiene

Answer: D



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9. Rubber latex is

- A. Emulsion of polyhydrocarbon droplets in an aqueous solution

B. Milk white suspension of crude rubber in CCl_4

C. True solution of crude rubber in water

D. True solution of crude rubber in alcohol

Answer: A



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10. Rubber latex is which type of emulsion

A. oil in oil type

B. water in oil type

C. oil in water type

D. solid in water type

Answer: C



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11. Incorrect statement about PHBV is

- A. it is co-polymer of 3- hydroxybutanoic acid and 3 - hydroxypentanoic acid
- B. it has ester linkage
- C. excess of hydroxy pentanoic acid makes the polymer more tougher
- D. it undergoes degradation by bacteria

Answer: C



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12. Which of the following is a polymer containing nitrogen

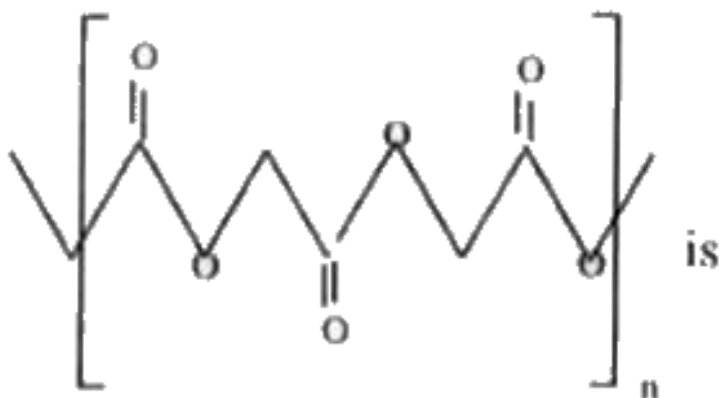
- A. Terylene
- B. Polythene
- C. PVC

D. Nylon

Answer: D



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13. is

A. polyglycolic acid

B. polylactic acid

C. PHBV

D. Nylon-2-Nylon - 6

Answer: A



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14. Bakelite is a product of the reaction between (or) A thermo setting polymer is obtained by the reaction between

A. Formaldehyde and NaOH

B. Urea and aniline

C. Phenol and methanal

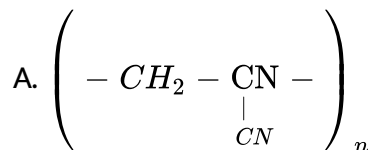
D. Phenol and chloroform

Answer: C



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15. Orlon or acrilan is



- B. $\left(\begin{array}{c} \text{CH}_3 \\ | \\ -\text{CH}_2 - \text{C} - \\ | \\ \text{COOCH}_3 \end{array} \right)_n$
- C. $\left(\begin{array}{c} -\text{CH}_2 - \text{CH} - \\ | \\ \text{COOC}_2\text{H}_5 \end{array} \right)_n$
- D. $\left(\begin{array}{c} -\text{CH}_2 - \text{CH} - \\ | \\ \text{Cl} \end{array} \right)_n$

Answer: A



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16. Polymer used in bullet proof is or plexi glass is

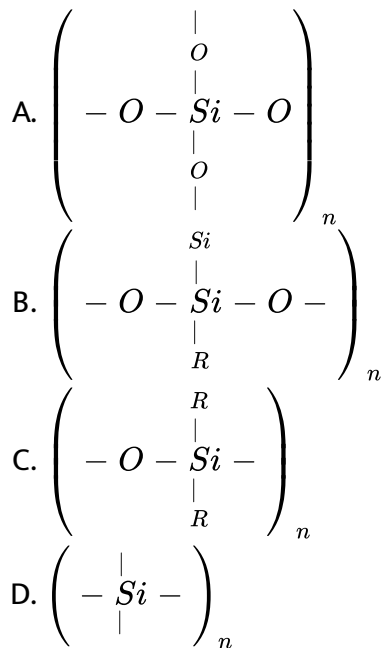
- A. Polystyrene
- B. Poly acrylonitrile
- C. Poly ethyl acrylate
- D. Polymethyl methacrylate

Answer: D



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17. Structure of Silicone polymer is



Answer: C



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18. Which one of the following is not a vinyl polymer

A. PVC

B. polystyrene

C. polyacrylonitrile

D. PTFE

Answer: D



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19. The catalyst used for the polymerisation of olefins is

A. Ziegler Natta catalyst

B. Wilkinson's catalyst

C. Pd - catalyst

D. Zeise's salt catalyst

Answer: A



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20. A linear product of phenol and formaldehyde is used

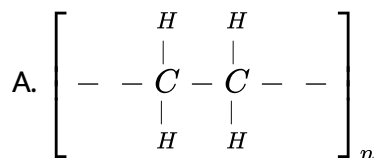
- A. in paints
- B. in explosive mixture
- C. gears
- D. in utensils

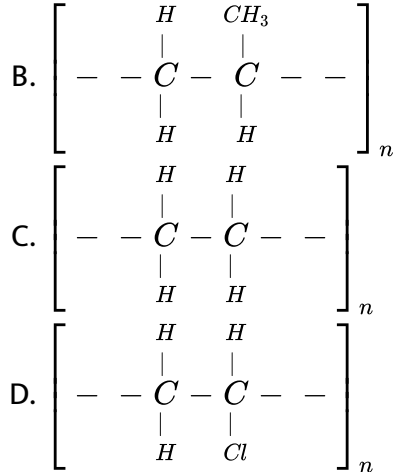
Answer: C



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21. Which of the following is teflon?





Answer: C



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22. Chemically natural rubber is

- A. polyisoprene
- B. polyneoprene
- C. polychloroprene
- D. polycyanoprene

Answer: A



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Objective Exercise 1

1. Which is an example of thermo setting polymer

A. Polythene

B. PVC

C. Neoprene

D. Bakelite

Answer: D



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2. Which of the following is a chain growth polymer

A. Nucleic acid

B. Polystyrene

C. Protein

D. Styrene

Answer: B



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3. Which of the following is incorrect

A. Polyethylene contains double bonds

B. The monomer used to make teflon is C_2F_4

C. Condensation polymers are also known as step growth polymers.

D. A denatured protein could have the same primary structure as the active protein

Answer: A



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4. A co-polymer is one in which

- A. two monomers undergo condensation
- B. there is excessive cross linking
- C. extensive hydrogen bonding
- D. repeating unit contains two different monomers

Answer: D



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5. Natural polymer among the following is

- A. Cellulose
- B. PVC
- C. Teflon

D. Polyethylene

Answer: A



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6. Which among the following is a semi synthetic polymer.

A. Cellulose rayon

B. Acrylonitrile

C. Cellulose nitrate

D. Both 1 & 3

Answer: D



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7. Thermoplastic polymer among the following is

- A. Bakelite
- B. Urea formaldehyde resin
- C. Polysiloxanes
- D. PVC

Answer: D



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8. Polymerization of iso butene is mostly initiated by

- A. a cation
- B. an anion
- C. a free radical
- D. Zwitter ion

Answer: A



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9. In which one of the following type of polymerization generally no initiator is required

- A. Cationic polymerization
- B. Anionic polymerization
- C. Free radical polymerization
- D. Condensation polymerization

Answer: D



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10. The catalyst used for the polymerisation of olefins is

- A. Ziegler natta catalyst
- B. Wilkinson's catalyst
- C. pd-catalyst

D. Zeise's salt catalyst

Answer: A



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11. Terylene is

- A. An addition polymer with a benzene ring in every repeating unit
- B. A condensation polymer with benzene ring in every repeating unit
- C. An addition polymer with two carbon atoms in every repeating unit
- D. A condensation polymer with two nitrogen atoms in every repeating unit

Answer: B



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12. Statement 1 : The order of extent of attractive forces between monomers is fibres > thermoplastic polymers > elastomers

Statement II : Thermoplastic polymers become soft on heating

Statement III : Thermosetting polymers become hard on heating Correct statement is/are

A. All

B. Only II

C. Only I, III

D. Only I

Answer: A



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13. Monomers are converted to polymers by

A. Hydrolysis of monomers

B. Condensation reaction between monomers

C. Protonation of monomers

D. None of these

Answer: B



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14. Which of the following is an example of condensation polymer (or)

Which of the following is not an example of addition polymer

A. Polythene

B. PVC

C. Orlon

D. Terylene

Answer: D



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15. Elastomers among the following are

A. Buna-N

B. Buna-S

C. Neoprene

D. All

Answer: D



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16. Linear polymer among the following is

A. Melamine

B. Starch

C. Bakelite

D. Polyvinylchloride

Answer: D



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17. Which among the following is a branched chain polymer.

A. LDPE

B. Nylon

C. Phenol formaldehyde resin

D. Terylene

Answer: A



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18. Cross linked polymer among the following is

A. Polythene

B. LDPE

C. Melamine formaldehyde resin

D. Nylon 6, 6

Answer: C



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19. Which one of the following is an example of thermosetting polymer ?

A. Polythene

B. PVC

C. Neoprene

D. Bakelite

Answer: D



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20. Which one is classified as condensation polymer?

- A. Teflon
- B. Acrylonitrile
- C. Dacron
- D. Neoprene

Answer: C



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21. Which of the following is a branched polymer?

- A. Low density polythene
- B. Polyester
- C. Nylon
- D. PVC

Answer: A



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22. Which of the following sets contain only copolymers?

- A. SBR, Glyptal, Nylon 6,6
- B. Nylon 6, Butyl rubber, Neoprene
- C. Polythene, Polyester, PVC
- D. Melmac, Bakelite, Teflon

Answer: A



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23. Increasing order of intermolecular forces of the following polymers is

- A. Neoprene, PVC, Nylon -6

B. Nylon, PVC, Neoprene

C. PVC, Neoprene, Nylon -6

D. Neoprene, Nylon -6, PVC

Answer: A



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24. Incorrect statement among the following

A. In cation polymersation termination step is absent

B. Alkyl Lithium compounds are effective chain initiators

C. Acetyl peroxide is used as a free radical generating initiator in free radical mechanism

D. Ziegler-Natta catalyst is triethyl aluminium

Answer: A



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25. Examples for natural polymers are

- A. Cotton, Silk, Bakelite and Wool
- B. Cellulose, Polystyrene and Neoprene
- C. Nylon, Terylene and PVC
- D. Silk, Cotton and Proteins Natural Rubber

Answer: D



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26. The process involving heating of rubber with sulphur is called

- A. Galvanisation
- B. Vulcanisation
- C. Bessemerisation

D. Sulphonation

Answer: B



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27. Rubber latex is

A. oil in oil

B. water in oil

C. oil in water

D. solid in water

Answer: C



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28. Natural rubber is a polymer of (or) the monomer of natural polymer rubber is

- A. Butadiene
- B. Ethyne
- C. Isoprene
- D. Styrene

Answer: C



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29. Natural rubber is a

- A. trans-polyisoprene
- B. Chloroprene
- C. Buna-S
- D. cis-polyisoprene

Answer: D



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30. The vulcanized rubber has

- A. high water absorbing tendency
- B. low elasticity
- C. high sensitivity to heat treatment
- D. high resistance to chemical oxidation

Answer: D



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31. Natural rubber is a

- A. trans isomer

B. cis isomer

C. contains equal amounts of cis and trans isomers

D. racemic mixture

Answer: B



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32. Empirical formula and molecular formula of monomer of natural rubber are respectively

A. C_5H_8 , C_5H_8

B. C_5H_8 , $(C_5H_8)_n$

C. C_4H_8 , C_4H_6

D. C_5H_{12} , C_5H_8

Answer: A



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33. The synthetic polymer which resembles natural rubber is

A. Neoprene

B. Buna -S

C. Nylon

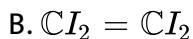
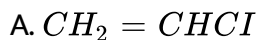
D. Rayon

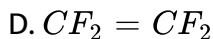
Answer: A



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34. Which of the following monomers gives the polymer neoprene on polymerization?





Answer: C



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35. Which one of the following statements is not true ?

- A. Buna-S is a copolymer of butadiene and styrene
- B. Natural rubber is a 1, 4-polymer of isoprene
- C. In vulcanization, the formation of sulphur bridges between different chains makes rubber harder and stronger.
- D. Natural rubber has the trans-configuration at every double bond

Answer: D



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36. Neoprene is formed by

- A. Free radical polymerization
- B. Cationic polymerisation
- C. Anionic polymerization
- D. Condensation polymerization

Answer: A



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37. Tubeless tyres are copolymers of isoprene and

- A. Neoprene
- B. Silicons
- C. Isobutylene
- D. PAN

Answer: C



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38. Which of the following is not a natural polymer

- A. Cellulose
- B. Protein
- C. PVC
- D. Nucleic acid

Answer: C



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39. Which of the following is not a polymer

- A. Silk

B. DNA

C. DDT

D. Dextrin

Answer: C



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40. A linear product of phenol and formaldehyde is used

A. In paints

B. In explosives

C. Gears

D. In alestils

Answer: A



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41. Which of the following is a polymer containing nitrogen

- A. Terylene
- B. Polythane
- C. PVC
- D. Nylon

Answer: D



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42. In elastomers intermolecular forces are

- A. weak
- B. strong
- C. very strong
- D. nil

Answer: A



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43. Which of the following is a biodegradable polymer

A. Cellulose

B. Polythene

C. PVC

D. Nylon 6

Answer: A



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44. Polymer used for controlled release of drugs SI

A. Poly glycolic acid

B. Poly lactic acid

C. Nylon-2-Nylon-6

D. PHBV

Answer: D



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45. Which of the following is a biodegradable polymer?

A. Nylon-66

B. PHBV

C. Teflon

D. Polychloroprene

Answer: B



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46. Which of the following is a biodegradable polymer

- A. Dextron
- B. Nylon-2-nylon-6
- C. Nylon-66
- D. PHBV

Answer: B



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47. Which one of the following is a biodegradable polymer ?

- A. Glyptal
- B. Polyhydroxy butyrate - CO - β hydroxy valerate
- C. PHBV
- D. Nylon-2-Nylon-6

Answer: A



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48. The polymer used for making unbreakable cups and laminated sheets

A. Polystyrene

B. Glyptal

C. Bakelite

D. Urea-formaldelyde resin

Answer: D



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49. Nylon threads are made of

A. Polyethylene polymer

B. Polyvinyl polymer

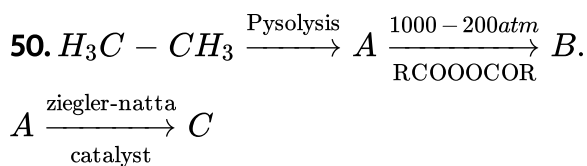
C. Polyester polymer

D. Polyamide polymer

Answer: D



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Here B and C are respectively

A. LDPE, HDPE

B. HDPE, LDPE

C. LDPE, LDPE

D. HDPE, HDPE

Answer: A



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51. The polymer used in the manufacture of electrical goods such as switches, plugs etc is

- A. Polythene
- B. Bakelite
- C. Neoprene
- D. PHBV

Answer: B



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52. During the polymerization of ethylene hybridization of 'C' changes from ___ to ____

- A. sp^2 , sp

B. sp^2 , sp^3

C. sp , sp^2

D. sp^3 , sp^3

Answer: B



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53. When acetylene passed through red hot Fe tube hybridization of C changes from to

A. sp^2 , sp

B. sp^2 , sp^3

C. sp , sp^2

D. sp^3 , sp^2

Answer: B



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54. Orlon is a polymer of

- A. Styrene
- B. Acrylonitrile
- C. Vinyl chloride
- D. C_2F_4

Answer: B



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55. Which one of the following cannot be used as monomer in a polymerization reaction

- A. C_2H_4
- B. C_2H_2
- C. C_2H_6

D. C_4H_6

Answer: C



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56. Catalyst used in the polymerisation of ethylene is

A. Ag

B. O_2

C. Ni

D. $Pd + BaSO_4$

Answer: B



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57. The catalyst used in the manufacture of Buna-s is

A. Pt

B. Ni

C. coke

D. Na

Answer: D



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58. Characterstic property of teflon is

A. 2000 poise viscosity

B. high surface tension

C. non inflammable and resistant to heat

D. high reactive

Answer: C



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59. The monomers used in the production of nylon-6,6 are

- A. hexamethylene diamine and ethylene glycol
- B. adipic acid and ethylene glycol
- C. adipic acid and hexamethylene diamine
- D. dimethyl terephthalate and ethylene glycol Polymers

Answer: C



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60. Terylene is the polymer of

- A. Ethylene glycol and terephthalic acid
- B. Melamine and formaldehyde
- C. Vinyl chloride and formaldehyde

D. Hexamethylene diamine and adipic acid

Answer: A



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61. PVC is used for

A. Manufacture of cosmetics

B. Manufacture of tyres

C. Manufacture of non-stick pans

D. Manufacture of plastic pipes

Answer: D



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62. Which of the following has ester linkage

A. Nylon 6,6

B. Terylene

C. PVC

D. SBR

Answer: C



Watch Video Solution

63. The synthetic polymer which resembles natural rubber is

A. Neoprene

B. PMMA

C. Glyptal

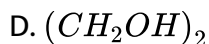
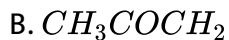
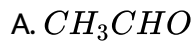
D. Nylon

Answer: A



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64. Bakelite is obtained from phenol by reacting with



Answer: C



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65. How is Dacron obtained from ethylene glycol and terephthalic acid ?

A. Glyptal

B. Dacron

C. Nylon 6, 6

D. Buna - S rubber

Answer: A



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66. Given the polymers: A=Nylon, B= Buna-S, C=Polythene. Arrange these in increasing order of their intermolecular forces (lower to higher)

A. $A > B > C$

B. $B > C > A$

C. $B < C < A$

D. $C < A < B$

Answer: C



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67. Which of the following sets contains thermoplastics.

- A. Polythene, Bakelite, Nylon 6
- B. Glyptal, Melmac, PAN
- C. PVC, PMMA, Polystyrene
- D. Polypropylene, urea - formaldehyde, Teflon

Answer: C



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Column - I Column - II

68. A) Nylon - 6 p) Addition copolymer
B) Buna - s q) Addition homopolymer
C) Melmac r) Condensation homopolymer
D) Teflon s) Condensation copolymer

A. A-s, B-q, C-p, D-r

B. A-p, B-r, C-q, D-s

C. A-r, B-p, C-s, D-q

D. A-r, B-p, C-q, D-s

Answer: C



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69. The raw materials used in Nylon-6 is

- A. Adipic acid
- B. Phthalic acid
- C. Ethylene glycol
- D. Caprolactam

Answer: D



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70. A polymer commonly used for making nonstick cookware is

A. SBR

B. Teflon

C. PVC

D. Poly ethyl acrylate

Answer: B



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71. Which one of the following is a polyamide ?

A. Nylon-6, 6

B. Terylene

C. Polythene

D. Buna-S

Answer: A



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72. The monomer used in Novolac, a polymer used in paints

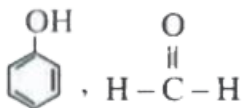
- A. Melamine and Formaldehyde
- B. Phenol and Formaldehyde
- C. Butadiene and Acrylonitrile
- D. Butadiene and Styrene

Answer: B

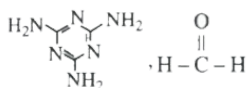


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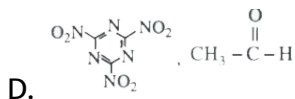
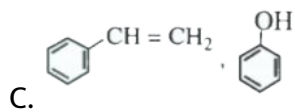
73. The monomers required for the formation of melamine polymer are



A.



B.



Answer: B

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74. Which one of the following is a polyamide ?

A. Terylene

B. Nylon-6,6

C. Bakelite

D. Buna-S

Answer: B

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Objective Exercise 3

1. Which one is chain growth polymer ?

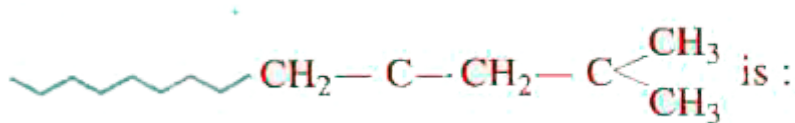
- A. Starch
- B. Nucleic acid
- C. Polystyrene
- D. Protein

Answer: C

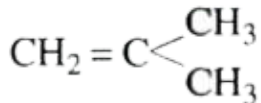


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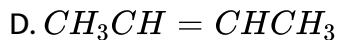
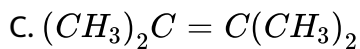
2. The monomer of polymer



- A. $\text{CH}_3\text{CH} = \text{CH}_2$



B.



Answer: B



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3.



is a :

A. Thermosetting polymer

B. Homopolymer

C. Copolymer

D. Addition polymer

Answer: C



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4. Polymer obtained by condensation polymerization is :

A. polythene

B. teflon

C. PVC

D. nylon-6, 6

Answer: D



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5. Which one of the following statements is not true ?

A. Natural rubber has the trans-configuration at every double bond

B. Buna-S is a copolymer of butadiene and styrene

C. Natural rubber is a 1, 4-polymer of isoprene

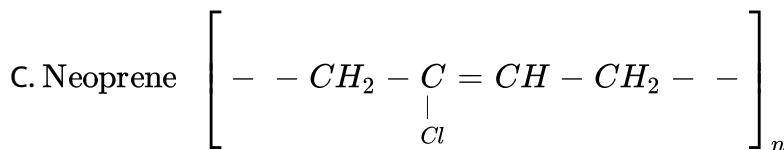
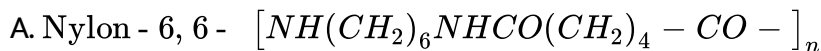
D. In vulcanization, the formation of sulphur bridges between different chains make number harder and stronger

Answer: A

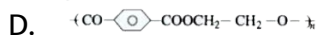


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6. Structures of some common polymers are given. Which one is not correctly matched ?



Terylene

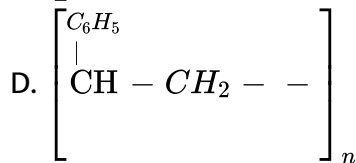
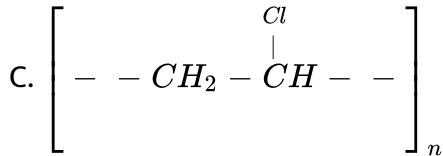
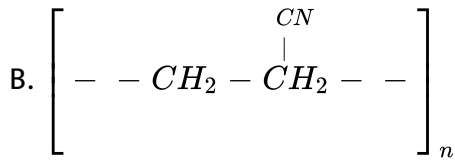
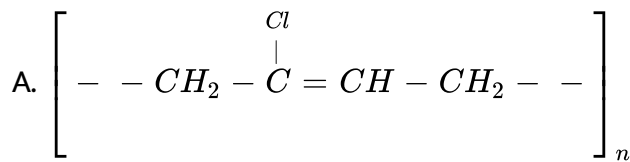


Answer: C



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7. Which of the following represents neoprene polymer ?



Answer: A



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8. Of the following which one is classified as polyester polymer ?

A. Nylon-6, 6

B. Bakelite

C. Terylene

D. Melamine

Answer: C



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9. Which one of the following is not a condensation polymer?

A. Dacron

B. Neoprene

C. Melamine

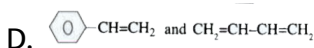
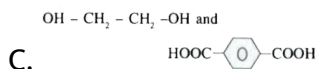
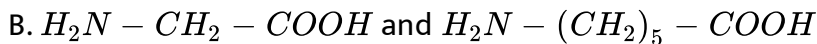
D. Glyptal

Answer: B



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10. Which one of the following sets forms the biodegradable polymer ?



Answer: B



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11. Which of the following statements is false ?

A. The repeat unit in natural rubber is isoprene

B. Both starch and cellulose are polymers of glucose

C. Artificial silk is derived from cellulose

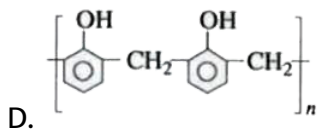
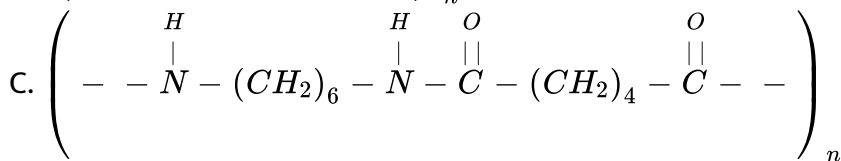
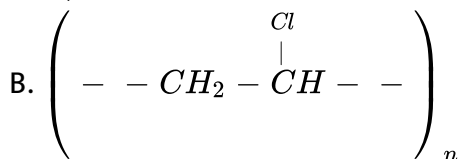
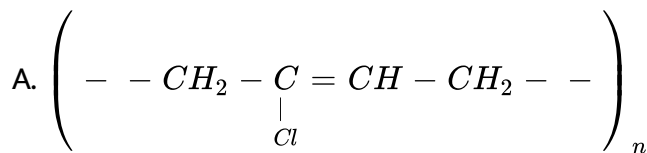
D. Nylon-6, 6 is an example of elastomer

Answer: D



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12. Which one of the following is an example of thermosetting polymer ?



Answer: D



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13. Which of the following organic compounds polymerizes to form the polyester Dacron ?

A. Propylene and para $HO - (C_6H_4) - OH$

B. Benzoic acid and ethanol

C. Terephthalic acid and ethylene glycol

D. Benzoic acid and para $OH - (C_6H_4) - OH$

Answer: C



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14. Biodegradable polymer which can be produced from glycine and aminocaproic acid is

A. buna-N

B. nylon 6, 6

C. nylon 2-nylon 6

D. PHBV

Answer: C



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15. Caprolactam is used for the manufacture of

A. Trylene

B. Nylon-6, 6

C. Nylon-6

D. Teflon

Answer: C



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16. Natural rubber has :

A. Alternate cis- and trans-configuration

B. Random cis and trans configuration

C. All cis-configuration

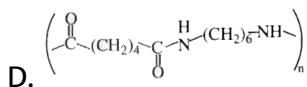
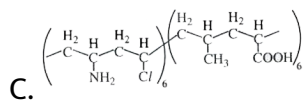
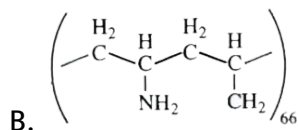
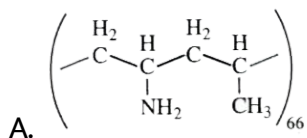
D. All trans-configuration.

Answer: C



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17. Which one of the following structures represents nylon 6, 6 polymer ?



Answer: D



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18. Regarding cross-linked or network polymers, which of the following statements is incorrect ?

- A. Examples are Bakelite and melamine
- B. They are formed from bi- and tri-functional monomers
- C. They contain covalent bonds between various linear polymer chains
- D. They contain strong covalent bonds in their polymer chains,

Answer: B



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Objective Exercise 4

1. (A) Glyptal is a condensation homo polymer.

(R) Glyptal is used to prepare computer discs.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D



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2. (A): Molecular mass of polymers is always expressed as an average.

(R) : Generally, a polymer sample contains chains of varying lengths.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



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3. (A): $F_2C = CF_2$, is the monomer of teflon.

(R): Polytetrafluoroethylene is commonly called teflon.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: B



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4. (A): The chains of nylon-6, 6 are held by hydrogen bonding forces.

(R): Intermolecular hydrogen bonding leads to molecular association.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of

(A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B



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5. (A) : Natural rubber and gutta percha are examples of cis-trans isomers.

(R) : Cis-trans isomerism arises due to the difference of geometrical arrangement of two different groups on the double bonded carbon atoms.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A



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6. (A): Styrene is more reactive than propylene towards cationic polymerization.

(R): The carbocation resulting from styrene is more stable than that resulting from propylene.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



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7. (A) Nylon-6 is obtained by polymerization of caprolactam.

(R) Nylon-6 is a polyamide.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)

- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: B



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8. (A) P.V.C is an addition copolymer

(R) P.V.C is used to prepare handles of utensils.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: D



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9. (A) Vulcanised rubber is stiff and has little tendency to absorb water.

(R) Vulcanisation introduces sulphur bridges between polymer chains.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of

(A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A



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10. (A) Natural rubber is cis polyisoprene.

(R) Isoprene is 2-methyl-1,3-butadiene.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B



Watch Video Solution

11. (A) Thermosetting polymers are cross linked polymers.

(R) Thermosetting polymers cannot be reused.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: B



Watch Video Solution

12. (A) Natural rubber is an elastomer.

(R) The intermolecular forces of attraction between the polymer chains are weak van der Waals forces.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: B



Watch Video Solution

13. (A) Bakelite is prepared by copolymerisation of formaldehyde and phenol.

(R) Adding of phenol with formaldehyde gives polymer bakelite.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: C



Watch Video Solution

14. (A) Cellulose is natural polymer.

(R) Cellulose is obtained from plants.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of

(A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A



Watch Video Solution

15. (A) Cellulose acetate is a semisynthetic polymer.

(R) Natural polymers subjected to chemical modifications give semisynthetic polymers

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



Watch Video Solution

16. (A) Poly vinyl chloride is a linear polymer.

(R) Poly vinyl chloride is a Thermoplastic polymer.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: B



Watch Video Solution

17. (A) L.D.P.E is a branched polymer.

(R) L.D.P.E is inert tough and flexible.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of

(A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B



Watch Video Solution

18. (A) Bakelite is a cross linked polymer.

(R) Bakelite is formed from phenol and formaldehyde.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of

(A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B



Watch Video Solution

19. (A) Benzene does not undergo polymerisation.

(R) Benzene loses aromaticity if involved in polymerisation

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



Watch Video Solution

20. (A) Ethylene can undergo polymerisation.

(R) Ethylene contain a weak Pi bond.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: B



Watch Video Solution

21. (A) P.V.C is a homopolymer.

(R) P.V.C is obtained by the polymerization of vinyl chloride.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of

(A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A



Watch Video Solution

22. (A) Nylon 6,6 is a condensation co-polymer.

(R) To prepare nylon-6, 6 two different monomers are each containing six carbon atoms undergo polymerisation.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



Watch Video Solution

23. (A) Nylon-6 is a condensation polymer.

(R)Nylon-6 is obtained from caprolactum.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)

- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: B



Watch Video Solution

24. (A) Buna-N is an elastomer.

(R) Buna-N is rubber like solid with elastic properties.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: B



Watch Video Solution

25. (A) Nylon-6, 6 is a fibre.

(R) Intermolecular attraction in Nylon 6, 6 are strong hydrogen bonds.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



Watch Video Solution

26. (A) Poly styrene is a Thermoplastic polymer.

(R) Polystyrene softens on heating and hardens on cooling.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of

(A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A



Watch Video Solution

27. (A) Bakelite is a Thermoplastic polymer.

(R) Bakelite is a linear polymer.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: D



Watch Video Solution

28. (A) Urea formaldehyde resin can be reused again even on strong heating.

(R) Urea formaldehyde resin is a Thermo- plastic polymer.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: D



Watch Video Solution

29. (A) Addition polymerisation is also known as step growth polymerisation.

(R) Addition polymers are always homo- polymers.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D



Watch Video Solution

30. (A) Poly lactic acid is a condensation copolymer.

(R) Poly lactic acid is resistant to alkalis and acids.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of

(A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D



Watch Video Solution

31. (A) $AlCl_3$ can initiate cationic polymerisation.

(R) $AlCl_3$ can produce H^+ ion with water.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



Watch Video Solution

32. (A) In Anionic polymerization chain terminating step is absent.

(R) Anionic polymerization is initiated by $NANH_2$.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: B



Watch Video Solution

33. (A) Benzoyl peroxide can initiate free radical polymerisation.

(R) Phenyl free radical is very stable.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: C



Watch Video Solution

34. (A) Ethylene can not be prepared by anionic polymerisation.

(R) Ethylene is an unsaturated hydrocarbon.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of

(A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B



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35. (A) Teflon is used in nonstick cookware

(R) Teflon is resistant to attack by corrosive reagent.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



Watch Video Solution

- 36.** (A) Condensation polymerisation is called step growth polymerisation.
(R) In condensation polymerization each step produces a distinct functional group, which is independent of each other.
- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



Watch Video Solution

37. (A) Nylon-6 is condensation homo polymer.

(R) Nylon-6 is a fibre.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of

(A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B



Watch Video Solution

38. (A) Dacron is used as reinforcing material in safety helmets.

(R) Dacron is a homopolymer.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of

(A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: C



Watch Video Solution

39. (A) Novolac is a linear polymer.

(R) Bakelite is obtained from novolac.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: B



Watch Video Solution

40. (A) Melamine is a thermosetting polymer

(R) Melamine is a condensation copolymer

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: B



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41. (A) Melamine polymers are used to prepare unbreakable crockery items.

(R) Melamine polymers are cross linked polymers.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B



Watch Video Solution

42. (A) Vulcanised Rubber suits industry than natural Rubber.

(R) Elastic properties of Rubber can be reduced due to vulcanization.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of

(A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A



Watch Video Solution

43. (A) Rubber latex is colloidal dispersion in water with negatively charged particles.

(R) Rubber can be coagulated by $AlCl_3$.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: C



Watch Video Solution

44. (A) Ebonite contain a high percentage of sulphur.

(R) Ebonite is a hard material.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: B



Watch Video Solution

45. (A) The process of vulcanization can be accelerated by ZnO or zinc acetate.

(R) Vulcanised Rubber is used in tyre industry.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B



Watch Video Solution

46. (A) Position of double bond in poly isoprene can be detected by ozonolysis.

(R) Poly isoprene formation involve a head to tail mechanism.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of

(A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B



Watch Video Solution

47. (A) Neoprene is a synthetic Rubber.

(R) Neoprene is obtained from chloroprene.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: B



Watch Video Solution

48. (A) The P.D.I of synthetic polymer is greater than one.

(R) Synthetic polymers are rare when compared to natural polymers.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: C



Watch Video Solution

49. (A) P.H.B.V is used in spaciality packing.

(R) P.H.B.V is a Biodegradable polymer.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of

(A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B



Watch Video Solution

50. (A) Biodegradable polymers are ecofriendly.

(R) Biodegradable polymers undergo bacterial degradation.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A



Watch Video Solution

51. (A) Poly glycolic acid is used as post operative sutures.

(R) Poly glycolic acid is biodegradable polymer.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



Watch Video Solution

52. (A) Poly vinyl pyrrolidone is an addition homo polymer.

(R) Poly vinyl pyrrolidone is a life saving substance as blood plasma.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: B



Watch Video Solution

53. (A) In the preparation of plexi glass acetone is used.

(R) Poly methyl metha crylate [PMMA] is plexi glass.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: B



Watch Video Solution

54. (A) Buna-N is also known as G.R.A.

(R) Buna-N is a synthetic Rubber.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of

(A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B



Watch Video Solution

55. (A) The inter molecular forces in thermosetting polymer is strongest among all other polymers.

(R) Thermosetting polymers are highly cross linked polymers.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



Watch Video Solution

56. (A) Dextron is a non biodegradable polymer.

(R) Dextron is used in safety helmets.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: D



Watch Video Solution

57. (A) In natural rubber, the polyisoprene chains exist as coiled structure.
(R) In polyisoprene Cis-configured chains are held together by weak Vander waals interactions.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A)
- B. Both (A) and (R) are true and (R) is not the correct explanation of (A)
- C. (A) is true but (R) is false
- D. Both (A) and (R) are false

Answer: A



Watch Video Solution

58. (A) Bakelite is a thermosetting polymer.

(R) Bakelite is a cross-linked polymer.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of

(A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A



Watch Video Solution

59. (A) Chloroprene is a synthetic rubber.

(R) Synthetic rubbers may be homo (or) co- polymers.

A. Both (A) and (R) are true and (R) is the correct explanation of (A)

B. Both (A) and (R) are true and (R) is not the correct explanation of

(A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D



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