CHEMISTRY

BOOKS - PRADEEP CHEMISTRY (HINGLISH)

POLYMERS

Curiosity Questions

1. What is crazy glue or super glue ?

Watch Video Solution

2. Name the polymers used in (I) bullet vests (ii) protective clothing for fire- fighters (iii) bulttet proof windows or crash

helmets.

Watch Video Solution

Test Yours Grip Multiple Choice Questions

1. Rayon is a

A. natural polymer

B. semi-synthetic polymer

C. synthetic polymer

D. none of these

Answer: B

Watch Video Solution

2. Which of the following is a linear polymer ?

A. Nylon

B. Bakelite

C. Low density polythene

D. Melamine-formaldehyde polymer.

Answer: A

Watch Video Solution

3. Which of the following is a branched polymer ?

A. Low density polythene

B. Polyester

C. Nylon

D. PVC.

Answer: A

Watch Video Solution

4. Which of the following is not a thermoplastic ?

A. Polythene

B. Bakelite

C. Nylon 6,6

D. Teflon

Answer: B

Watch Video Solution

5. Bakelite is a/an

A. addition polymer

B. thermoplastic polymer

C. elastomer polymer

D. thermosetting polymer

Answer: D

Watch Video Solution

6. Which of the following is a step-growth polymer?

A. Polyacrylonitrile

B. Polyisoprene

C. Nylon

D. Polythene.

Answer: C

Watch Video Solution

7. Which is not a condensation polymer ?

A. nylon -6,6

B. glyptal

C. dacron

D. PTFE (polyterafluoroethene)

Answer: D

Watch Video Solution

8. Given th polymers,

$A =$ Nylon-6,6, $B =$ Buna-S, $C =$ Polythene

Arrange these in decreasing order of their intermolecular forces:

A. $A > B > C$

B. $B > C > A$

C. $B < C < A$

D. $C < A < B$

Answer: C

Watch Video Solution

9. Natural rubber is a polymer of

A. butadiene

B. ethylene

C. isoprene

D. neoprene

Answer: C

Watch Video Solution

10. Bakelite is a polymer of

A. benzaldehyde and phenol

B. formaldehyde and phenol

C. formaldehyde and benzyl alcohol

D. acetaldehyde and phenol

Answer: B

Watch Video Solution

11. Which of the following polymer can be used for lubrication and as an insulator?

A. SBR

B. PVC

C. PTFE

D. PAN

Answer: C

Watch Video Solution

12. Which of the following is a biodegradable polymer ?

A. Cellulose

B. Polyethene

C. PVC

D. Nylon-6

Answer: A

Watch Video Solution

13. Which of the following is the biodegradable polymer of polymide class?

A. Dextron

B. Nylon -2-Nylon-6

C. Nylon-6,6

D. PHBV

Answer: B

Watch Video Solution

Test Yours Grip Fill In The Blanks

1. Polythene is a .....homopolymer while bakelite is a .....copolymer.

Watch Video Solution

2. Ziegler-Natta catalyst is a mixture of .....and .....and is used for preparation of .....

Watch Video Solution

3. When ethene is heated at 350-370 K under a pressure of $1000 - 2000$ atm in presence of trace of oxygen or peroxide .....is obtained.

Watch Video Solution

4. The monomer of PAN is .....

Watch Video Solution

5. .....is obtained by polymerization of .....and is used for making non -stick utensils.

Watch Video Solution

6. Nylon 6 is obtained by polymerisation of .....

Watch Video Solution

7. Monomers of nylon 6,6 are .....and .....

Watch Video Solution

8. Nylon 6,10 is obtained by condensation polymerization of .....with .....

Watch Video Solution

9. The monomer of terylene are .....and .....

Watch Video Solution

10. .....is used for making magnetic recording tapes.

Watch Video Solution

11. Bakelite is the condensation polymer of formaldehyde and .....

Watch Video Solution

12. Natural rubber is a polymer of .....

Watch Video Solution

13. Natural rubber is .....but gutta percha is .....

Watch Video Solution

14. The process of vulcanization was introduced by .....

Watch Video Solution

15. In vulcanized rubber.....are in form of cross links.

Watch Video Solution

16. Buna-S, is obtained by copolymerization of .....with .....

Watch Video Solution

17. In Buna S,S is for

Watch Video Solution

18. Neoprene is polymer of .....

Watch Video Solution

19. PHBV is a biodegradable polymer and is obtained by copolymerization of .....with .....

Watch Video Solution

20. The polymer obtained by step-growth polymerization of 2-aminoethanoic acid and 6- aminohexanoic acid is called .....

Watch Video Solution

21. The starting material for the manufacture of polyvinyl chloride is obtained by reacting HCl with .....

Watch Video Solution

22. Di-n-butylphthalate is a .....

Watch Video Solution

23. The polymer PMMA is used for making .....and its monomer is.

Watch Video Solution

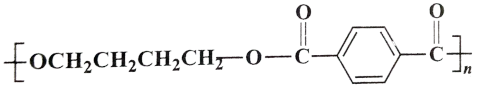
24. .....is used in the manufacture of paints

Watch Video Solution

Conceptual Questions

1. Write the structures of the monomers of the following polymers :

(a) $+OCH_2CH_2-O-CH_2CH_2+_n$ (b) $+CH(CH_2)_4CH=N(CH_2)_6N+_n$

(c) 

Watch Video Solution

2. What is the repeating unit in the condensation polymer obtained by combining $HO_2CCH_2CH_2COOH$ (succinic acid) and $H_2NCH_2CH_2NH_2$ (ethylene diamine)?

Watch Video Solution

3. Draw the repeating structural units of the step- growth polymers you would expect to obtain from the following reactions.

(a) $BrCH_2CH_2CH_2Br + HOCH_2CH_2CH_2OH \xrightarrow{\text{Base}}$

(b) $HOCH_2 - CH_2OH + HOOC(CH_2)COOH \xrightarrow{H^+}$

Watch Video Solution

4. (a) **(a) Is** $\left\{CH_2—CH(C_6H_5)\right\}_n$

a homopolymer or a copolymer ?

(b) Is it an addition or condensation polymer ?

Watch Video Solution

5. (a) Can a copolyer be formed in both addition and condensation polymerization ? Explain.

(b) Can a homopolymer be formed in both addition and condensation polymerization ? Explain.

Watch Video Solution

6. Differentiate between the following pairs of polymers based on the property mentioned against each :

(i) Novolac and Bakelite (Structure)

(ii) Buna-S and Terylen (Intermolecular forces).

Watch Video Solution

7. What are thermosetting polymers ?

Watch Video Solution

8. Define thermoplastics.

Watch Video Solution

9. What are high and low density polythenes ?

Watch Video Solution

10. What is the role of t-butyl peroxide in the polymerisation of ethene

Watch Video Solution

11. How does the presence of benzoquinone inhibit the free radical polymerisation of a vinyl derivative?

Watch Video Solution

12. What is the primary structural feature necessary for a molecule to make it useful in a condensation polymerisation reaction ?

Watch Video Solution

13. State the significance of numbers 6 and 6,6 in the polymer names nylon -6 and nylon 6,6. or in nylon 6,6 what does the designation 6,6 mean ?

Watch Video Solution

14. What are biodegradable polymers ?

Watch Video Solution

Ncert Questions And Exercises With Answers Ncert Intext Unsolved Questions

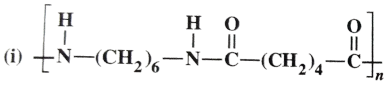
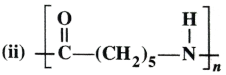
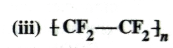
1. What are polymers ?

Watch Video Solution

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

Watch Video Solution

3. Write the names of monomers of the following polymers :

(i)  (ii)  (iii) 

Watch Video Solution

4. Classify the following as addition and condensation polymers : Terylene, Bakelite, polyvinyl chloride, polythene.

Watch Video Solution

5. What is the difference between Buna-N and Buna-S.

Watch Video Solution

6. Arrange the following polymers in increasing order of their intermolecular forces :

(i) Nylon 6, 6, Buna-S, Polythene.

(ii) Nylon 6, Neoprene, Polyvinyl chloride.

Watch Video Solution

Ncert Questions And Exercises With Answers Ncert Exercises

1. Explain the terms polymer and monomer.

Watch Video Solution

2. What are natural and synthetic polymers ? Give two examples of each type.

Watch Video Solution

3. Distinguish between the terms homopolymer and copolymer and give an example of each.

Watch Video Solution

4. How do you explain the functionality of a monomer?

Watch Video Solution

5. Define the following terms :

Polymerization

Watch Video Solution

6. Is  , a homopolymer or a copolymer ?

Watch Video Solution

7. In which classes, the polymers are classified on the basis of molecular forces ?

Watch Video Solution

8. How can you differentiate between addition and condensation polymerisation ?

Watch Video Solution

9. Explain the term copolymersation and give two examples.

Watch Video Solution

10. Write the free radical mechanism for the polymersation of ethene.

Watch Video Solution

11. Define thermoplastics and thermosetting polymers with two examples of each.

Watch Video Solution

12. Write the monomers used for getting the following polymers.

(i) Polyvinyl chloride

(ii) Teflon

(iii) Bakelite.

Watch Video Solution

13. Write the name and structure of one of the common initiators used in free radical addition polymersations.

Watch Video Solution

14. How does the presence of double bonds in rubber molecules influence their structure and reactivity?

Watch Video Solution

15. Discuss the main purpose of vulcanisation of rubber.

Watch Video Solution

16. Which are the monomeric repeating units of Nylon-6 and Nylon-6,6 ?

Watch Video Solution

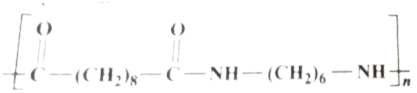
17. Write the names and structures of the monomers of the following polymers:

(i)Buna-S,(ii)Buna-N

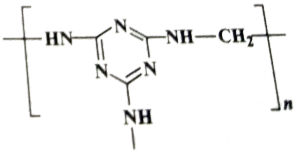
(iii)Dacron,(iv)Neoprene

Watch Video Solution

18. Identify the monomer in the following polymeric structure :



(ii)



Watch Video Solution

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

Watch Video Solution

20. What is a biodegradable polymer ? Give an example of a biodegradable aliphatic polyester.

Watch Video Solution

Ncert Examplar Problems With Answers Hints And Solutions Multiple Choice Questions I

1. Which of the following polymers of glucose is stored by animals?

A. Cellulose

B. Amylose

C. Amylopectin

D. Glycogen

Answer: D

Watch Video Solution

2. Which of the following is not semisynthetic polymer?

A. cis- Polyisoprene

B. Cellulose nitrate

C. Cellulose acetate

D. Vulcanished rubber

Answer: A

Watch Video Solution

3. The commercial name of polyacrylonitrile is

A. Dacron

B. Orlon (acrilan)

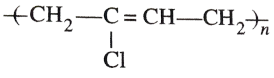
C. PVC

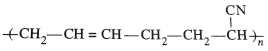
D. Bakelite

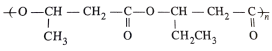
Answer: B

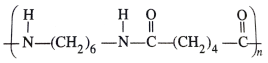
Watch Video Solution

4. Which of the following polymers is biodegradable ?

A. 

B. 

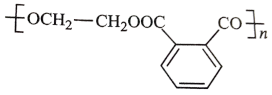
C. 

D. 

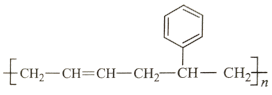
Answer: C

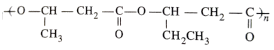
Watch Video Solution

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

A. 

B. 

C. 

D. 

Answer: A

Watch Video Solution

6. Which of the following statements is not true about low density polythene ?

A. Tough

B. Hard

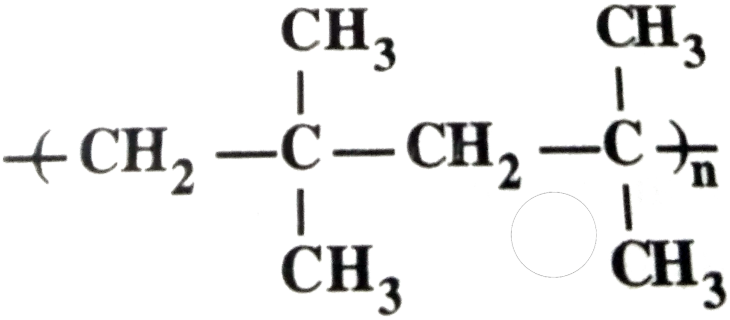
C. Poor conductor of electricity

D. Highly branched structure.

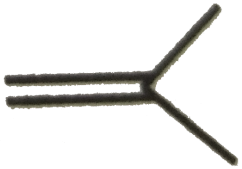
Answer: D

Watch Video Solution

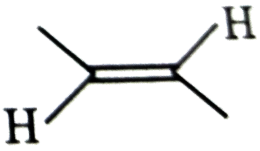
7.

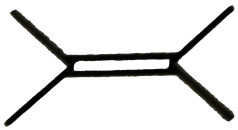


is a polymer having monomer nuits .....

A. 

B. 

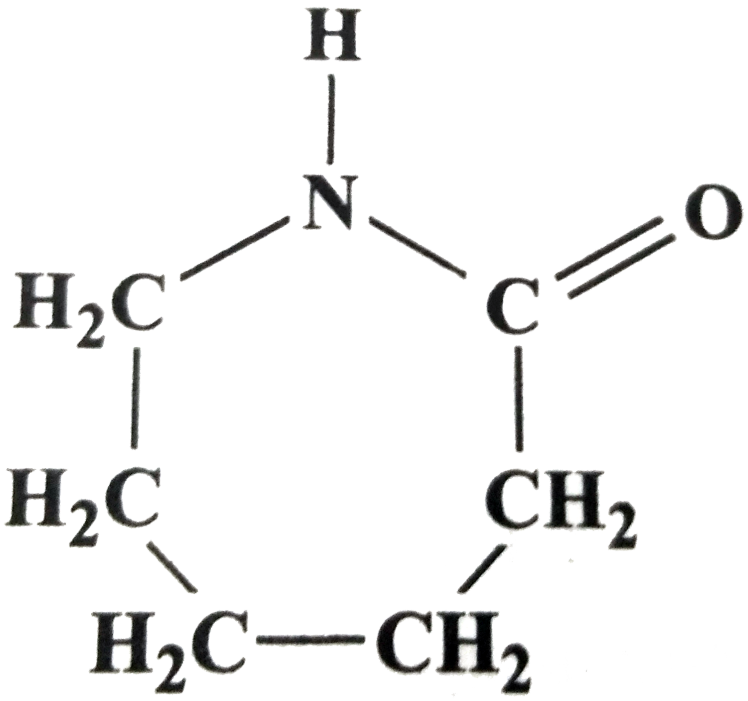
C. 

D. 

Answer: A

Watch Video Solution

8. Which of the following polymer can be formed by using the following monomer unit ?



Watch Video Solution

Ncert Examplar Problems With Answers Hints And Solutions Multiple Choice Questions Ii

1. Which of the following polymers, need atleast one diene monomer for their preparation?

A. Dacron

B. Buna-S

C. Neoprene

D. Novolac

Answer: B::C

Watch Video Solution

2. Which of the following characteristics of thermosetting polymers?

A. Heavily branched cross linked polymers

B. Linear slightly on moulding so cannot be reused

C. Because infusible on moulding so cannot be reused

D. Soften on heating and harden on cooling, can be reused

Answer: A::C

Watch Video Solution

3. Which of the following polymers are thermoplastic?

A. Teflon

B. Natural rubber

C. Neoprene

D. Polystyrene

Answer: A::D

Watch Video Solution

4. Which opf the following polymers are used as fibre?

A. Polyterafluoroethene

B. Polychloroprene

C. Nylon

D. Terylene

Answer: C::D

Watch Video Solution

5. Which of the following are addition polymers?

A. Nylon

B. Melamine formaldehyde resin

C. Orlon

D. Polystyrene

Answer: C::D

Watch Video Solution

6. Which of the following polymers are condensation polymes?

A. Bakelite

B. Teflon

C. Butyl rubber

D. Melamine formaldehyde resin

Answer: A::D

Watch Video Solution

7. Which of the following monomers form biodegradable polymers?

A. 3-hydroxybutanoic acid $+3$ -hydroxypentanoic acid

B. Glycine $+ \in$ -aminocaproic acid

C. Ethylene glycol $+$ phthalic acid

D. Caprolactum

Answer: A::B

Watch Video Solution

8. Which of the following are example of synthetic rubber?

A. Polychloroprene

B. Polyacrylonitrile

C. Buna -N

D. cis -Polyioprene

Answer: A::C

Watch Video Solution

9. Which of the following polymers can have strong intermolecular forces ?

A. Nylon

B. Polystyrene

C. Rubber

D. Polyesters

Answer: A::D

Watch Video Solution

10. Which of the following polymers have vinylic monomer units

A. Acrilan

B. Polystyrene

C. Nylon

D. Teflon

Answer: A::B::D

Watch Video Solution

11. Vulcanisation makes rubber

A. more elastic

B. soluble in inorganic solvent

C. crystalline

D. more stiff

Answer: A::D

Watch Video Solution

Ncert Examplar Problems With Answers Hints And Solutions Short Answer Questions

1. A natural linear polymer of 2 methyl -1,3 - butadiene becomes hard on treatment with suphur between 373 to 415 K and -s - s- bonda are formed between chains.Write the structure of the product of this treatment?

Watch Video Solution

2. Identify the type of polymer.

$-A-A-A-A-A-A-$

Watch Video Solution

3. Identify the type of polymer

-A-B-B-A-A-A-B-A-

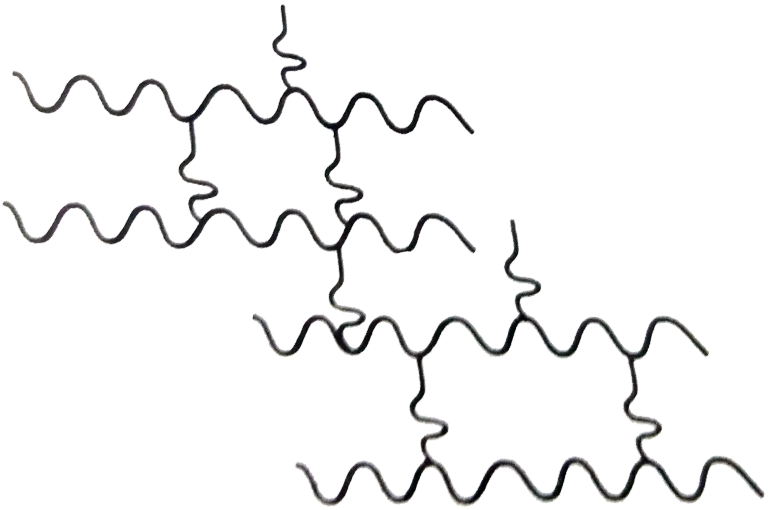
Watch Video Solution

4. Out ot chain growth polymerisation and step growth polymerisation, in which type will you place the following :

$-(A)_m + -(A)_n \longrightarrow -(A)_m-(A)_n$ or $-(A-A)_{m+n}$

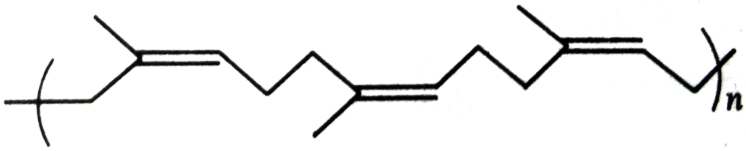
View Text Solution

5. Identify the type of polymer given in the following figure.



Watch Video Solution

6. Identify the polymer given below :



Watch Video Solution

Watch Video Solution

7. why are rubber called elastomers?

Watch Video Solution

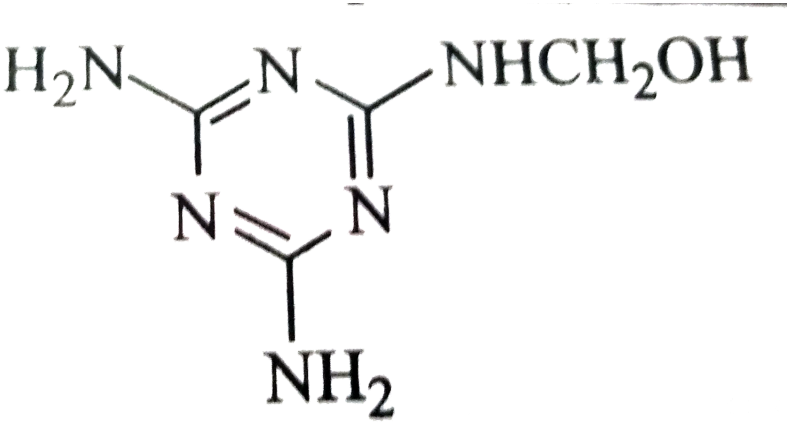
8. can enzyme be called a polymer?

Watch Video Solution

9. Can nucleic acid protein and starch be considered as step growth polymers?

Watch Video Solution

10. How is the following resin intermediate prepared and which polymer is formed by this monomer unit ?



View Text Solution

11. To have practical applications why are cross links required in rubber?

Watch Video Solution

12. Why does cis polyisoprene posses elastic porperty?

Watch Video Solution

13. What is the structural difference between HDP and LDP? How does the structure account for different behaviour and nature hence use of polymer?

Watch Video Solution

14. What is the role of benzoyl peroxide in addition polymerisation of alkenes? Explain its mode of action with the help of an example

Watch Video Solution

15. Which factor imparts crystalline nature to a polymer like nylon?

Watch Video Solution

16. Name the polymer used in laminating sheets and give the name of monomeric units involved in its formation

Watch Video Solution

17. Which type of biomolecules have some structural similarity with synthetic cpolyamides? What is similarity?

Watch Video Solution

18. Why should the monomer used in addition polymerisation through free radical pathway be very pure?

Watch Video Solution

Ncert Examplar Problems With Answers Hints And Solutions Matching Type Questions

1. Match the polymer of column I with correct monomer of column II.

Column I		Column II	
(*i*)	High density polythene	(*a*)	Isoprene
(*ii*)	Neoprene	(*b*)	Tetrafluoroethene
(*iii*)	Natural rubber	(*c*)	Chloroprene
(*iv*)	Teflon	(*d*)	Acrylonitrile
(*v*)	Acrilan	(*e*)	Ethene

Watch Video Solution

2. Match the polymers given in Column I with their chemical names give in Column II.

Column I		Column II	
(*i*)	Nylon 6	(*a*)	Polyvinyl chloride
(*ii*)	PVC	(*b*)	Polyacrylonitrile
(*iii*)	Acrilan	(*c*)	Polycaprolactam
(*iv*)	Natural rubber	(*d*)	Low density polythene
(*v*)	LDP	(*e*)	*cis*-Polyisoprene

Watch Video Solution

3. Match the polymers given in column I with their commerical names given in column II

	Column I		Column II
A.	Polyester of glycol and phthalic acid	1.	Novolac
B.	Copolymer of 1, 3-butadiene and styrene	2.	Glyptal
C.	Phenol and formaldehyde resin	3.	Buna-S
D.	Polyester of glycol and terephthalic acid	4.	Buna-N
E.	Copolymer of 1,3- butadiene and acrylonitrile	5.	Dacron

Watch Video Solution

4. Match the polymers given in column I with their main applications given in column II

Column I		Column II	
A.	Bakelite	1.	Unbreakable crockery
B.	Low density polyethene	2.	Non-stick cookwares
C.	Melamine-formaldehyde resin	3.	Packaging material for shock absorbance
D.	Nylon-6	4.	Electrical switches
E.	Polytetrafluoroethane	5.	Squeeze bottles
F.	Polystyrene	6.	Tyre, cords

Watch Video Solution

5. Match the polymers given in column I with the preferred mode of polymerisation followed by their monomers columnII

Column I		Column II	
A.	Nylon-6,6	1.	Free radical polymerisation
B.	PVC	2.	Ziegler-Natta polymerisation or coordination polymerisation
C.	HDP	3.	Anionic polymerisation
		4.	Condensation polymerisation

Watch Video Solution

6. Match the polymers given in column I with the type of linkage present in them given in column II

Column I		Column II	
A.	Terylene	1.	Glycosidic linkage
B.	Nylon	2.	Ester linkage
C.	Cellulose	3.	Phosphodiester linkage
D.	Protein	4.	Amide linkage
E.	RNA		

Watch Video Solution

7. Match the materials given in Column I with the polymers given in Column II.

Column I		Column II	
(*i*)	Natural rubber latex	(*a*)	Nylon
(*ii*)	Wood laminates	(*b*)	Neoprene
(*iii*)	Ropes and fibres	(*c*)	Dacron
(*iv*)	Polyester fabric	(*d*)	Melamine formaldehyde resins
(*v*)	Synthetic rubber	(*e*)	Urea-formaldehyde resins
(*vi*)	Unbreakable crockery	(*f*)	cis-polyisoprene

Watch Video Solution

Ncert Examplar Problems With Answers Hints And Solutions Assertion And Reason Type Questions

1. Assertion (A) Rayon is a semisynthetic polymer and is taken as a better choice than cotton fabric.

Reason (R) Mechanical and aesthetic properties of cellulose can be improved by Acetylation

A. Assertion and reason both are correct statements and reason does not explain assertion.

B. Assertion and reason both are correct statements but reason explains the assertion.

C. Both assertion and reason are wrong statements.

D. Assertion is correct statement and reason is wrong statement.

Answer: B

Watch Video Solution

2. Assertion (A) Most of the synthetic polymers are not biodegradable

Reason (R) Polymerisation process induces toxic character in organic molecules

A. Assertion and reason both are correct statements and reason does not explain assertion.

B. Assertion and reason both are correct statements but reason explains the assertion.

C. Both assertion and reason are wrong statements.

D. Assertion is correct statement and reason is wrong statement.

Answer: D

Watch Video Solution

3. Assertion (A) Olefinic monomers undergo addition polymerisation

Reason (R) Polymerisation of vinyl chloride is initiated by peroixdes/persulphates

A. Assertion and reason both are correct statements and reason does not explain assertion.

B. Assertion and reason both are correct statements but reason explains the assertion.

C. Both assertion and reason are wrong statements.

D. Assertion is correct statement and reason is wrong statement.

Answer: A

Watch Video Solution

4. Assertion (A) Polyamides are best used fas fibres because of high tensile strength.

Reason (R) Strong intermolecular foces (like hydrogen bonding within polyamides) lead to close packing of chains and increase the crystalline character hence , provide high tensile strength to polymers

A. Assertion and reason both are correct statements and reason does not explain assertion.

B. Assertion and reason both are correct statements but reason explains the assertion.

C. Both assertion and reason are wrong statements.

D. Assertion is correct statement and reason is wrong statement.

Answer: B

Watch Video Solution

5. Assertion (A) For making rubber synthetically isoprene molecules are polymerised .

reason (R) Neoprene (a polymer of chloroprene) is a syntheitc rubber

A. Assertion and reason both are correct statements and reason does not explain assertion.

B. Assertion and reason both are correct statements but reason explains the assertion.

C. Both assertion and reason are wrong statements.

D. Assertion is wrong statement and reason is correct statement.

Answer: D

 Watch Video Solution

6. Assertion (A) Network polymers are thermosetting

Reason (R) Network Polymers have high molecular mass

A. Assertion and reason both are correct statements and reason does not explain assertion.

B. Assertion and reason both are correct statements but reason explains the assertion.

C. Both assertion and reason are wrong statements.

D. Assertion is correct statement and reason is wrong statement.

Answer: A

 Watch Video Solution

7. Assertion (A) Polytetrafluorothene is used in making non stick cookwares.

Reason (R) Fluorine has highest electronegativity.

A. Assertion and reason both are correct statements and reason does not explain assertion.

B. Assertion and reason both are correct statements but reason explains the assertion.

C. Both assertion and reason are wrong statements.

D. Assertion is correct statement and reason is wrong statement.

Answer: A

Watch Video Solution

Ncert Examplar Problems With Answers Hints And Solutions Long Answer Questions

1. Synthetic polymers do not degrade in the environment for a long time. How can biodegradable synthetic piolymers be made. Differentiate between biopolymers and biodegradable polymers and give examples of each type.

Watch Video Solution

2. Differentiate between rubbers and plastics on the basis of intermolecular forces.

Watch Video Solution

3. Phenol and fomaldehyde undergo condensation to give a polymar (A) which on heating with formaldehyde gives a thermosetting polymer (B) Name the polymers. Write the reaction involved in the formation of (A) what is the structural difference between two polymers?

Watch Video Solution

4. Low density polythene and high density polythene both are polymers of ethene but there is marked difference in their porperities. Explain.

Watch Video Solution

5. Which of the following polymers soften on heating and harden on colling? What are the polyfmers with this property collectively called ? What are the structural similarites between such polymers? Bakelite urea formaldehyde resin , polythene, polyvinyls, polystyrene.

Watch Video Solution

Additional Questions Very Short Answer Questions

1. Homopolymer

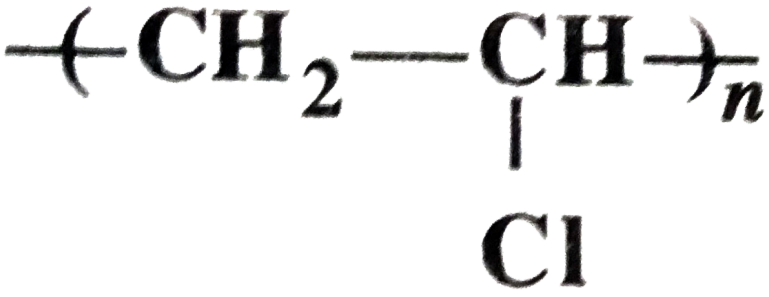
Watch Video Solution

2. What are copolymers ? Give one example of a copolymer.

Watch Video Solution

3. Distinguish between the terms homopolymer and copolymer and give an example of each.

Watch Video Solution

4. Is  , a homopolymer or a copolymer ?

Watch Video Solution

5. What is synthetic polymer ? Write one name.

Watch Video Solution

6. ADDITION POLYMERS

Watch Video Solution

7. Explain the following giving one suitable example in each case

(i) Elastomers (ii) Condensation polymers (iii) Addition polymers

Watch Video Solution

8. (a) What are the monomer units of the polymer nylon-2- nylon-6? Is this polymer biodegradable?

(b) What are elastomers? Give one example.

Watch Video Solution

9. (a) Give an example of a synthetic rubber and mention its main advantage.

(b) Write the structure of the monomers of Dacron

(c) Arrange the given polymers in the increasing order of tensile strength Nylon-6, Buna-S, Polythene

Watch Video Solution

10. Arrange the following molecules in the increasing order of their intermolecular forces. (i) Terylene , Polythene , Neoprene , (ii) Polystyrene , Terylene , Buna -S

Watch Video Solution

11. What is plasticizer ?

Watch Video Solution

12. The polymer used for making nonstick utensils is .....

Watch Video Solution

13. Write chemical reactions for the preparation of following polymers a) teflon b) polyacrylonitrile

Watch Video Solution

14. Write chemical reactions for the preparation of following polymers a) teflon b) polyacrylonitrile

Watch Video Solution

15. What is the primary structural feature necessary for a molecule to make it useful in a condensation polymerisation reaction ?

Watch Video Solution

16. Name a synthetic polymer which is an amide.

Watch Video Solution

17. Write the structures of monomers of : PVC and Nylon-6

Watch Video Solution

18. Write the names and structure of the monomers of the following polymers:i)Buna-S ii)Neoprene,iii)Nylon-6,6

Watch Video Solution

19. How is nylon 6,6 synthesized ?

Watch Video Solution

20. Name a synthetic polymer which is an ester.

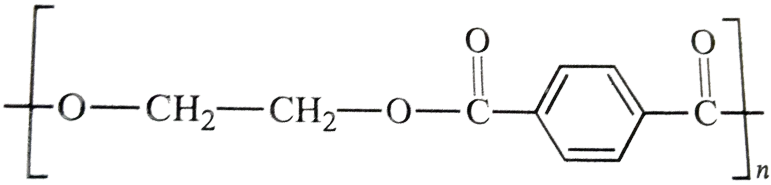
Watch Video Solution

21. Write name and structure of monomers of following polymer

: Dacron

Watch Video Solution

22. Identify the monomers of the following polymers.



Watch Video Solution

23. Write the monomers of bakelite.

Watch Video Solution

24. Why is bakelite a theromosetting polymer ?

Watch Video Solution

25. (a) Give the common and IUPAC name of the monomer of natural rubber.

(b) How is high density polythene obtained? What structural difference it has from low density polythene?

(c) Name a copolymer which is used for making non- breakable plastic crockery?

(d) Write the names and give the structures of the monomers of Nylon-6,6.

Watch Video Solution

26. What are the monomers of SBR or Buna -S ?

Watch Video Solution

27. What is the main constituent of bubble gum ?

Watch Video Solution

28. Structure of (monomer unit of) natural rubber is:

Watch Video Solution

29. What is the main difference in the structure of natural rubber and gutta-percha ?

Watch Video Solution

30. What is the function of S in the vulcanization of rubber?

Watch Video Solution

31. what is vulcanization of rubber ?

Watch Video Solution

32. Write the names and structure of the monomers of the following polymer : Neoprene

Watch Video Solution

33. Which polymer can be used for making contact lenses for eyes

Watch Video Solution

34. What is the name of polymer which is also known as orlon ?

Watch Video Solution

35. Monomer of PVC is

Watch Video Solution

36. Give the prepartion and uses of PVC (Polyvinyl Chloride)

Watch Video Solution

Additional Questions Short Answer Questions

1. What are polymers ? Why are they called macromolecues ?

Watch Video Solution

2. Define the term, 'homopolymerisation' giving an example.

Watch Video Solution

3. Differentiate between a homopolymer and a copolymer. Give one example of each type.

Watch Video Solution

4. What are natural and synthetic polymers ? Give two examples of each type.

Watch Video Solution

5. What are natural and synthetic polymers ? Give two examples of each type.

Watch Video Solution

6. Write three differences between natural and synthetic fibres. Give two examples of each.

Watch Video Solution

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

Watch Video Solution

8. Differentiated between addition and condensation polymers based on mode of polymerisation. Give one example of each type

Watch Video Solution

9. Giving one example of each of :

(i) addition polymers

(ii) condensation polymers

(iii) copolymers.

Watch Video Solution

10. How are polymers classified into different categories on the basis of intermolecular forces of attraction ? Give one example of a polymer of each of these categories.

Watch Video Solution

11. How are polymers classified on the basis of force operating between them ? To which of these classes does nylon-66 belong ?

Watch Video Solution

12. How are polymers classified on the basis of molecular forces?

Watch Video Solution

13. What are thermoplastic and thermosetting polymers ? Give one example of each.

Watch Video Solution

14. Differentiate between the molecular structures and behaviour of thermoplastic and thermosetting polymers. Give one example of each type

Watch Video Solution

15. Differentiate between thermoplastic and thermosetting polymers . Give one example of each.

Watch Video Solution

16. Define the terms : (i) Elastomers (ii) Fibers (iii) Thermoplastic polymers (iv) Thermosetting plastics.

Watch Video Solution

17. Arrange the following polymers in increasing order of their intermolecular forces. Also classify them as addition and condensation polymers : (i) Nylon 6, Neoprene , PVC

(ii) Nylon 66, Buna -S , Polythene.

Watch Video Solution

18. Explain the difference between chain -growth and step-growth polymerisation.

Watch Video Solution

19. Write the mechanism of free radical polymerisation of ethene.

Watch Video Solution

20. Write the free radical mechanism for the polymersation of ethene.

Watch Video Solution

21. How are low density and high density polyethylene manufactured ? Why do they differ in their densities ?

Watch Video Solution

22. How is polythene prepared from ethene ? Give chemical equation only

Watch Video Solution

23. What is teflon ? How is it synthesized ? Is it an addition or a condensation polymer ?

Watch Video Solution

24. How is PTFE prepared ? Give its two uses.

Watch Video Solution

25. What is the monomer of orlon ? How is orlon prepared. Give its one use.

Watch Video Solution

26. Write the name and draw the structure of the monomer unit/s for each of the following polymers :

(i) Polythene.

(ii) Teflon

(iii) PAN

(iv) Orlon

Watch Video Solution

27. What is meant by condensation polymerization ? Give one example.

Watch Video Solution

28. Give the equation for the synthesis of nylon - 6 from cyclohexane.

Watch Video Solution

29. Write the monomer units of nylon 6 and nylon, 6,6. Write one use of each.

Watch Video Solution

30. Nylon 6,10 is obtained by condensation polymerization of .....with .....

Watch Video Solution

31. Write the names and structures of the monomers of bakelite. State whether bakelite is a thermoplastic or thermosetting plastic. Give reasons for your answer.

Watch Video Solution

32. (a) Define condensation polymer. Write the chemical equation for the synthesis of bakelite.

Watch Video Solution

33. How is bakelite made and what is its major use ? Why is bakelite a thermoseting polymer /

Watch Video Solution

34. Write the name/s and draw the structure of the monomers for each of the following polymers. (i) Nylon 6 (ii) Nylon 6,6 (iii) Dacron or Terylene (iv) Bakelite (v) Melamine - Formaldehyde polymer.

Watch Video Solution

35. Give the preparation and two uses of the following :

(i) Baklite

(ii) Nylon ,6,6

(iii) Nylon 6

(iv) Terylene or Dacron

(v) Melamine - formaldehyde polymer

Watch Video Solution

36. What is meant by copolymerization.Give an example of such a polymer.

Watch Video Solution

37. What are the main advantages of copolymers over homopolymers.

Watch Video Solution

38. Give synthesis of Buna-S

Watch Video Solution

39. (a) What is Buna-S? Give two uses of it.

Watch Video Solution

40. What is the monomer of natural rubber ? What is the difference in the structure of natural rubber and gutta-percha ?

Watch Video Solution

41. What is vulcanization for rubber ? Discusses the main purpose of vulcanization of rubber

Watch Video Solution

42. How does vulcanization change the character of natural rubber ?

Watch Video Solution

43. What is vulcanization for rubber ? Discusses the main purpose of vulcanization of rubber

Watch Video Solution

44. (a) Rubber is a natural polymer obtained form the bark of rubber trees .

(i) Name the monomer of natural rubber.

(ii) Vulcanization improve elasticity of rubber. What is vulcanization ?

(b) Write two examples of synthetic rubber.

Watch Video Solution

45. Give the preparation and uses of the following : (i) Neoprene (ii) Buna -N.

Watch Video Solution

46. Write the name and structure of the repeating monomer unit of the following :

(i) Natural rubber (ii) Buna -N (iii) Neoprene (iv) Thiokol

Watch Video Solution

47. (a) Give an example of a synthetic rubber and mention its main advantage.

(b) Write the structure of the monomers of Dacron

(c) Arrange the given polymers in the increasing order of tensile strength Nylon-6, Buna-S, Polythene

Watch Video Solution

48. Write the monomer units of Buna -N and Buna -S. Write one use of each.

Watch Video Solution

49. What is a biodegradable polymer ? Why do we use such polymers ?

Watch Video Solution

50. Give the names and structure of the monomer units of the following :

(i) PHBV (ii) Dextron and (iii) Nylon -2-Nylon -6.

Watch Video Solution

51. (i) Identify aliphatic biodegradable polymer which is used in packing and in orthopedic devices

(ii) Write its full form

(iii) Give the structures of the monomers from which it is formed ?

(iv) Show the formation of the polymer

Watch Video Solution

52. What is PHBV ? How is it useful to man ?

Watch Video Solution

53. Write the name/s and draw the structure of the monomers unit/s for each of the following poymers :

(i) PVC or Polyvinyl chloride

(ii) Polystyrene

(iii) PMMA

(iv) Glypal

Watch Video Solution

54. Menation the important uses of the following : (i) PVC (ii) Urea formaldehyde resin.

Watch Video Solution

Additional Questions Long Answer Questions

1. What is polymerization ? Define and explain the terms : addition polymerization and condensation polymerization . Give one example of each type.

Watch Video Solution

2. Explain what do yo mean by copolymerization with suitable examples. What are its advantages over homo polymerization ? What are its various types.

Watch Video Solution

3. Give a brief description of natural and synthetic rubbers . What is vulcanization ? How does it improve the properties of natural and synthetic rubbers ?

Watch Video Solution

Higher Order Thinking Skills Questions And Problems With Answers Solutions Hots Questions

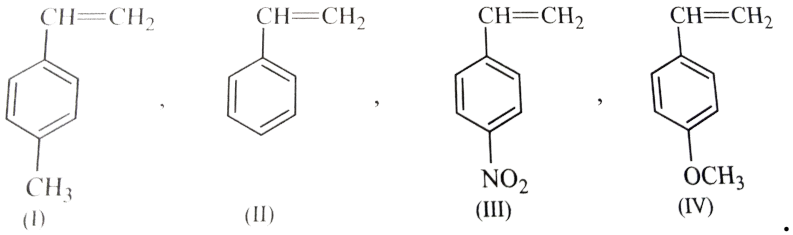
1. Arrange the following alkenes towards order of increasing reactivity in cationic polymerization:

$H_2C = CHCH_3, CICH = CH_2, H_2C = CHC_6H_5,$

$H_2C = CHCOOCH_3$

Watch Video Solution

2. Arrange the following monomers in order of decreasing reactivity in cationic polymerization.



Watch Video Solution

3. Arrange the following alkenes in order of increasing reactivity towards anionic polymerization.

$H_2C = CHCH_3, H_2C = CF_2, H_2C = CHCN, H_2C = CHC_6H_5$

Watch Video Solution

4. Will you prefer to polymerize acrylonitrile under anionic or cationic conditions. Explain.

Watch Video Solution

5. Free radical polymerization of stryene gives a product in which groups are on alternate carbon atoms rather than on adjacent carbon atoms. Exlpain.

View Text Solution

6. What are chain transfer agents ? Giving a suitable example , explain the overall effect of these agents on the process of vinyl polymerization.

View Text Solution

7. Explain why vinylidene chloride $(CH_2 = CCI_2)$ does not polymerise is isotactic , syndiotactic and atactic forms.

Watch Video Solution

8. Polypropylene contains a large number of chiral carbon atoms. Would you , therefore , expect samples of either isotactic , syndiotactic or atactic polypropylene to roatate plane - polarized light ? Explain.

View Text Solution

9. Explain how does 1, 3-butadiene polymerise by different route

Watch Video Solution

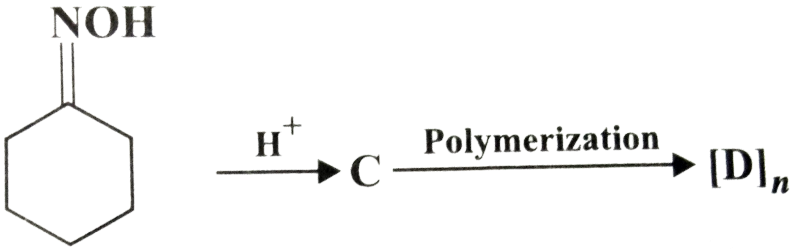
10. What is nylon ? Write an equation for the chemistry involved when a drop of hydrochloric acid makes a hole in a nylon stocking .

Watch Video Solution

11. A regular copolymer of ethylene and vinyl chloride contains alternate monomers of each type . What is the weight precent of ethylene in this copolymer.

Watch Video Solution

12. Give the structures of the products .



Watch Video Solution

Value Based Questions With Answers

1. After watching a programme on TV , about the problem of disposal of carry home bags and packaging material , Ankit - a clas XII student , suggested that instead of synthetic polymers carry home bags and packaging material used should be made up paper/ cardboard.

After reading the above passage , answer the folllowing

questions :

(i) Name the polymer used to make carry home bags and packaging material.

(ii) What values are expressed by Ankit ?

(iii) Give the name , structure and one used of a biodegradable aliphatic polyester.

Watch Video Solution

2. Sunita is of marriagable age. She wears spectables. She is afraid that the she may not find to suitable suggested her to wear contact lenses.

After reading the above passage , answer the following questions :

(i) What values are expressed by Manisha ?

(ii) Name the polymer used in making contact lenses.

(iii) How is this polymer prepared ?

(iv) Besides contact lenses what are the other uses of this polymer ?

Watch Video Solution

3. The medicines/drugs taken for treatment of different ailments are taken orally in form of suspensions , tablets or capsules. To have maximum effect of the medicine at the desired site in the body , capsules are used. Earlier these capsules were made up of starch which used to get hydrolysed partly in the mouth and largely almost immediately in the stomach. But these days, the capsules are made up of some biodegradable polymer which slowly gets hydrolysed to have the effect of the drug for a longer period.

Now answer the following questions :

(i) Write the name of the biodegradable polymer used for making capules.

(ii) What are the monomer units of this polymer ?

(iii) Why does it produce desired therapeutic effect slowly ?

(iv) What are the degradation products of this polymer ?

View Text Solution

4. During war , accidents or street quarrels , sometime people get deep injuries which require stitching, of wounds. Earlier these wounds used to be stitched by nylon thread which was non - biodegradable. This thread used to be pulled out after healing of wounds. This process caused pain to the patients. But these days biodegradable polymer is used for stitching of wounds which gets degraded by itself , within a weak or so.

Now answer the following questions :

Write the name of the biodegradable polymer used for stitching of wounds after operation.

(ii) What are the monomer units of this polymer ?

(iii) What are the degradation products of this polymer and what happens to them in the body ?

Watch Video Solution

5. After the ban on plastic bags, students of one school decided to make the people aware of the harmful effects of plastic bags on environment ans Yamuna River. To make the awareness more implctful, they organized rally by joining hands with other school and distributed paper bags to vegetable vendors, shopkeepers and departmental stores. All students pledged not to use polythene bags in future to save Yamuna River.

After reading the above passage, answer the following questions :

(i) What values are shown by the students ?

(ii) What are biodegradable polymers ? Given one example.

(iii) Is polythene a condensation or an addition polymer ?

Watch Video Solution

Competition Focus Jee Main And Advanced Medical Entrance Special I Multiple Choice Questions With One Correct Answer

1. Which polymers occur naturally?

A. Starch and Nylon

B. Starch and Cellulose

C. Proteins and Nylon

D. Proteins and PVC

Answer: B

Watch Video Solution

2. The monomer of Buna-S are :

A. vinyl chloride and sulphur

B. butadine

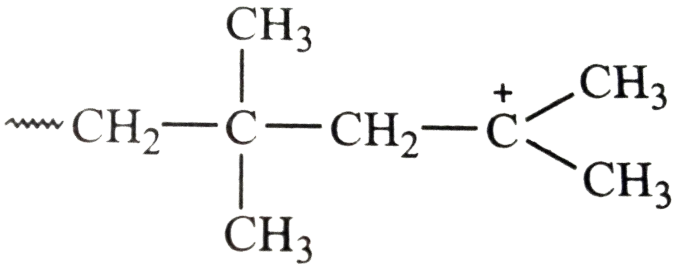
C. styrene and butadine

D. isoperene and butadiene

Answer: C

Watch Video Solution

3. The monomer of the polymer



is

A. $CH_3CH = CHCH_3$

B. $CH_3CH = CH_2$

C. $(CH_3)_2C = (CH_3)_2$

D. $H_2C = C(CH_3)_2$

Answer: D

Watch Video Solution

4. Which of the following is false ?

A. Artificial silk is derived from cellulose

B. Nylon-6,6is an example of elastomer

C. The repeat unit in natural rubber in isoprene

D. Both starch and cellulose are polymers of glucose

Answer: B

Watch Video Solution

5. Among cellulose, poly (vinyl chloride), nylon and natural rubber, the polymer in which the intermolecular force of attraction is weakest is

A. Nylon

B. Poly(vinyl chloride)

C. Cellulose

D. Natural rubber

Answer: D

Watch Video Solution

6. Formation of polyethylene from calcium carbide takes place as follows :

$$CaC_2 + 2H_2O \longrightarrow Ca(OH)_2 + C_2H_2$$

$$C_2H_2 + H_2 \longrightarrow C_2H_4$$

$$nC_2H_4 \longrightarrow \{CH_2 - CH_2\}_n$$

The amount of polyethylene obtained from $64.0kg$ of CaC_2 is

A. 7kg

B. 14kg

C. 21kg

D. 28kg

Answer: D

Watch Video Solution

7. Which of the following statements about low density polythene is false ?

A. Its synthesis requires high pressure

B. it is a poor conductor of electricity

C. Its synthetis requries dioxgren or a peroxide initiator as a catalyst

D. It is used in the manufacture of buckets , dustbin , etc.

Answer: D

Watch Video Solution

8. The catalyst used for olefin polymerization is:

A. Ziegler — Natta catalyst

B. Wilkinson catalyst

C. Raney nickel catalyst

D. Merrified resin

Answer: A

Watch Video Solution

9. Which of the following is a chain growth polymer?

A. Starch

B. Nucletic acid

C. Polystyrene

D. Proteins

Answer: C

Watch Video Solution

10. The species which can best serve as an initiator for the cationic polymerization is:

A. HNO_3

B. $AlCl_3$

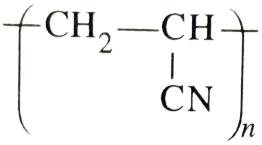
C. BuLi

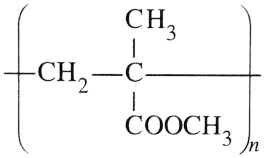
D. $LiAIH_4$

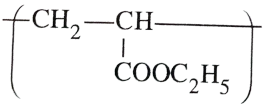
Answer: B

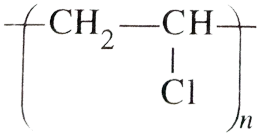
Watch Video Solution

11. Acrilan is a hard, horny and a high melting matrial. Which of the following represent its structure?

A. 

B. 

C. 

D. 

Answer: A

Watch Video Solution

12. Which one of the following is used to make ' non – stick ' cookware ?

A. PVC

B. Polystyrene

C. Poly(ethylene terephthalate)

D. Polytetrafluoroethylene

Answer: D

Watch Video Solution

13. Which of the following is fully fluorinated polymer?

A. Neoprene

B. Teflon

C. Thiokol

D. PVC

Answer: B

Watch Video Solution

14. The monomer used to produce orlon is:

A. $CH_2 = CHF$

B. $CH_2 = CCI_2$

C. $CH_2 = CHCI$

D. $CH_2 = CH - CN$

Answer: D

Watch Video Solution

15. A polymer of prop-2-enenitrile is called:

A. saran

B. orlon

C. dacron

D. teflon

Answer: B

 Watch Video Solution

16. Soft drinks and baby feeding bottles are generally made up of:

A. Polyester

B. Polyurethane

C. Polystyrene

D. Polyamide.

Answer: C

Watch Video Solution

17. The polymer used in the manufacture of squeeze bottles is:

A. Polystyrene

B. Teflon

C. Polypropene

D. Low density polythene

Answer: D

Watch Video Solution

18. Which one is classified as a condensation polymer ?

A. Acrylonitrile

B. Dacron

C. Neoprene

D. teflon

Answer: B

Watch Video Solution

19. Terylene is a condensation polymer of ehtylene glycol and

A. benzoic acid

B. phthalic acid

C. salicylic acid

D. terephathalic acid.

Answer: D

Watch Video Solution

20. Which of the following organic compounds polymerizes to form the polyster 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 $HO-(C_6H_4)-OH$

Answer: C

Watch Video Solution

21. Terylene is NOT a___.

A. copolymer

B. polyester fibre

C. chain growth polymer

D. step growth polymer

Answer: C

Watch Video Solution

22. Of the following which one is classified as polyester polymer ?

A. Nylon-6,6

B. Terylene

C. Bakelite

D. Melamine

Answer: B

Watch Video Solution

23. Glyptal polymer is obtained from glycerol on reacting with:

A. Malonic acid

B. Phthalic acid

C. Maleci acid

D. Acetic acid.

Answer: B

Watch Video Solution

24. Which polymer is used in the manufacture of paints and lacquers ?

A. Polypropene

B. Polyvinyl chloride

C. Bakelite

D. Glyptal

Answer: D

Watch Video Solution

25. Caprolactam is used for the manufacture of :

A. Teflon

B. Terylene

C. nylon6,6

D. Nylon-6

Answer: D

Watch Video Solution

26. Nylon is an example of

A. polyamide

B. polythene

C. polyester

D. polysaccharide

Answer: A

Watch Video Solution

27. Which of the following polymers contains nitrogen ?

A. polyvinyl chloride

B. Balelite

C. Nylon

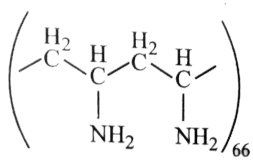
D. Terylene

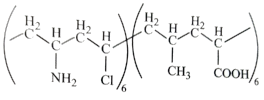
Answer: C

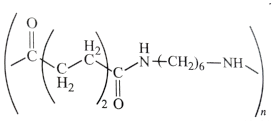
Watch Video Solution

28. Which one of the following structures represents nylon-6,6 polymer?

A.

B. 

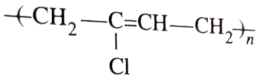
C. 

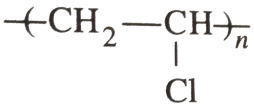
D. 

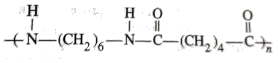
Answer: D

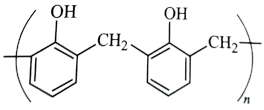
Watch Video Solution

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

A. 

B. 

C. 

D. 

Answer: D

Watch Video Solution

30. The monomer used in novolac, a polymer used in paints .

A. a copolymer of 1,3-butadiene and styrene

B. obtained by the copolmerization of methyl methacrylate

C. initial product obtained in the condensation of phenol and formadehyde

D. copolymer of melamine and formaldehyde

Answer: C

Watch Video Solution

31. Bakelite is obtained from phenol by reaction with:

A. HCHO

B. $(CH_2OH)_2$

C. CH_3CHO

D. CH_3COCH_3

Answer: A

Watch Video Solution

32. Natural rubber has :

A. alternate cis-and trans-configuration

B. random cis - and tran-configuration

C. all cis- configuration

D. all trans-configuration

Answer: C

Watch Video Solution

33. On complete hydrogenation, natural rubber produces

A. ethylene - propylene copolymer

B. vulcanished rubber

C. polypropylene

D. polybutylene

Answer: A

Watch Video Solution

34. Which of the following is not a condensation polymer?

A. Melamine

B. Glyptal

C. dacron

D. neoprene

Answer: D

Watch Video Solution

35. Which is the monomer of neoprene in the following?

A. $CH_2 = \underset{\underset{CI}{|}}{C} - CH = CH_2$

B. $CH_2 = \underset{\underset{CH_3}{|}}{C} - CH = CH_2$

C. $CH_2 = CH - C \equiv CH$

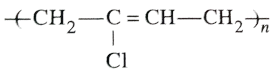
D. $CH_2 = CH - CH = CH_2$

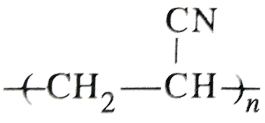
Answer: A

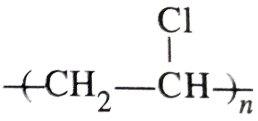
Watch Video Solution

36. Which of the following structures represents neoprene polymer?

A. $\left(\underset{\underset{C_6H_5}{|}}{CH}-CH_2\right)_n$

B. 

C. 

D. 

Answer: B

Watch Video Solution

37. 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

 Watch Video Solution

38. Which of the following statements is not correct ?

A. Caprolactam is the monomer of nylon-6

B. Terylene is a polyester polymer

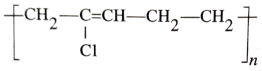
C. Phenol-formaldehyde resin is known as bakelite

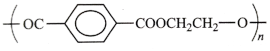
D. The monomer of natural rubber is butadiene.

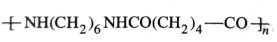
Answer: D

 Watch Video Solution

39. Struchures of some common polymers are given. Which one is not correctly represented?

A. 

B. 

C. 

D. Teflon 

Answer: A

Watch Video Solution

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

A. $H_2C = CH - CH = CH_2$ and $C_6H_5CH = CH_2$

B. $H_2C = CH - CN$ and $H_2C = CH - CH = CH_2$

C. $H_2C = CH - CN$ and $H_2C = CH - \underset{\underset{CH_3}{|}}{C} = CH_2$

D.

$$H_2C = CH - \overset{\overset{CI}{|}}{C} = CH_2 \text{ and } H_2C = CH - CH = CH_2$$

Answer: B

Watch Video Solution

41. Polymer used in bullet proof glass is:

A. PMMA

B. Lexan

C. Nomex

D. Kevlar.

Answer: B

Watch Video Solution

42. Which of the following is a biodegradable polymer ?

A. Polythene

B. Bakelite

C. PHBV

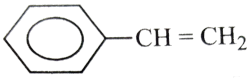
D. PVC

Answer: C

Watch Video Solution

43. Which one of the following sets forms biodegradable polymer?

A. $HO-CH_2-CH_2-OH$ and 

B. 

C. $CH_2=CH-CN$ and $CH_2=CH-CH=CH_2$

D. H_2N-CH_2-COOH and $H_2N-(CH_2)_5-COOH$

Answer: D

Watch Video Solution

44. 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

Watch Video Solution

Competition Focus Jee Main And Advanced Medical Entrance Special Ii Multiple Choice Questions With One Or More Than One Coreect Answers

1. Which of the following are Biopolymers?

A. Nucletic acids

B. Leather

C. Bakelite

D. Orlon

Answer: A::B

Watch Video Solution

2. Which of the following is a thermosetting polymer?

A. Bakelite

B. Polystyrene

C. PVC

D. Melmac

Answer: B::C

Watch Video Solution

3. Which of the following cannot be used as plasticizers ?

A. Di-n-octylphalate

B. Di-n-butylpthalate

C. Tricresyl phosphates

D. Sodium hexametaphosphate

Answer: D

Watch Video Solution

4. Which of the following are addition homopolymers?

A. Teflon

B. SBR

C. PVC

D. Natural rubber

Answer: A::C::D

Watch Video Solution

5. Vinyl polymerization may occur through intermediate formation of:

A. carbocations

B. carbanions

C. free radicals

D. carbenes

Answer: A::B::C

Watch Video Solution

6. Which of the following process can be used to prepare polystyrene?

A. Anionic

B. Cationic

C. Free radical

D. Ziegler-Natta

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

Watch Video Solution

7. Which of the following are condendation homopolymers ?

A. Nylon-6

B. Nylon-6,6

C. dacron

D. Glyptal

Answer: B::C::D

Watch Video Solution

8. Which of the following fibres are made of polyamides?

A. Wool

B. Natural silk

C. Rayon

D. Nylon

Answer: A::B::D

Watch Video Solution

9. Which of the following are biodegradable polymers?

A. Nylon-6,6

B. PHBV

C. nylon-2-nylon-6

D. Polychloroprene

Answer: B::C

Watch Video Solution

Competition Focus Jee Main And Advanced Medical Entrance Special Iii Multiple Choice Questions Based On The Given Passage Comprehension

1. A large numberof monomers (Simple molecules) combine together to form a larger molecule (macro molecule) called as polymer. Each polymer is made up of a repeating structural unit. A polymer is said to be homopolymer if the structural unit is derived from one type of monomer molecules. if the repeating structural unit of a polymer is derived from more than one different types of monomers, the polymer is said to a copolymer. The homopolymers as well as copolymers may be formed by addition or condensation reactions. Alekenes and dienes polymerize by additions (Chain growth) mechanism involving carbocations, carbanions or free radical intermeidates. Dienes (Chloroprene) polymerise by 1, 4 addition mechanism to give cis or trans polymers. Natural rubber is, however, cis-polyisoprene. Natural rubber is quite soft and tacky but these properties can be improved by a process called vulcanization.

In contrast, bifunctional monomer molecules undergo condensation or step-growth polymerization. Polymers which

can be heated and reshpaed as many times as desired are called thermoplastics (polyethene, polystyrene, PVC, teflon etc). While those which can be heated onoy once to give a particular shape are called thermosetting polymers (bakelite, melmac etc.)

Chloroprene is the repeating unit in:

A. Polystyrene

B. Neoprene

C. PVC

D. Polythene.

Answer: B

Watch Video Solution

2. A large number of simple molecules called monomers combine together to form a macromolecule called a polymer. Each

polymer has a repeating structural unit. If the repeating structural unit is derived from one type of monomer molecules. The polymer is said to be a homopolymer and if it is derived from two or more different types of monomer molecules , the polymer is said to be a copolmer. Both homopolymers and copolymers may be formed either by addition or condensation reactions. Alkenes and dienes polymerize by addition (chain growth) mechanism involving carbocations , carbanions or free radical intermediates. Dienes (chloroprene, isoprene, etc.) polymerize by 1, 4-addition mechanism to give cis-or trans-polymers. Natural rubber is quite soft and tacky but these properties can be improved by a process called vulcanization.

In contrast , bifunctional monomer molecules undergo , condensation or step-growth polymerization. Polymers which can be heated and reshaped as many times as desired are called thermoplastics , (polythene, polystyrene, PVC, teflon, etc.) while those which can be heated only once to give a particular shape

are called thermosetting polymers (bakelite, melmac, etc.).

Which is not a macromolecule ?

A. DNA

B. Starch

C. Palmitate

D. Insulin.

Answer: C

View Text Solution

3. A large number of simple molecules called monomers combine together to form a macromolecule called a polymer. Each polymer has a repeating structural unit. If the repeating structural unit is derived from one type of monomer molecules. The polymer is said to be a homopolymer and if it is derived

from two or more different types of monomer molecules , the polymer is said to be a copolmer. Both homopolymers and copolymers may be formed either by addition or condensation reactions. Alkenes and dienes polymerize by addition (chain growth) mechanism involving carbocations , carbanions or free radical intermediates. Dienes (chloroprene, isoprene, etc.) polymerize by 1, 4-addition mechanism to give cis-or trans-polymers. Natural rubber is quite soft and tacky but these properties can be improved by a process called vulcanization.

In contrast , bifunctional monomer molecules undergo , condensation or step-growth polymerization. Polymers which can be heated and reshaped as many times as desired are called thermoplastics , (polythene, polystyrene, PVC, teflon, etc.) while those which can be heated only once to give a particular shape are called thermosetting polymers (bakelite, melmac, etc.).

Teflon, styron and neoprene are all

A. copolymers

B. condensation polymers

C. homopolymers

D. monomers.

Answer: C

 Watch Video Solution

4. A large number of simple molecules called monomers combine together to form a macromolecule called a polymer. Each polymer has a repeating structural unit. If the repeating structural unit is derived from one type of monomer molecules. The polymer is said to be a homopolymer and if it is derived from two or more different types of monomer molecules , the polymer is said to be a copolmer. Both homopolymers and

copolymers may be formed either by addition or condensation reactions. Alkenes and dienes polymerize by addition (chain growth) mechanism involving carbocations , carbanions or free radical intermediates. Dienes (chloroprene, isoprene, etc.) polymerize by 1, 4-addition mechanism to give cis-or trans-polymers. Natural rubber is quite soft and tacky but these properties can be improved by a process called vulcanization.

In contrast , bifunctional monomer molecules undergo , condensation or step-growth polymerization. Polymers which can be heated and reshaped as many times as desired are called thermoplastics , (polythene, polystyrene, PVC, teflon, etc.) while those which can be heated only once to give a particular shape are called thermosetting polymers (bakelite, melmac, etc.).

Which of the following sets contains only thermoplastics ?

A. Polythene, Bakelite, Nylon 6

B. Glyptal, Melmac, PAN

C. PVC, PMMA, Polystyrene

D. Polypropylene, urea-formaldehyde , Teflon

Answer: C

Watch Video Solution

5. A large number of simple molecules called monomers combine together to form a macromolecule called a polymer. Each polymer has a repeating structural unit. If the repeating structural unit is derived from one type of monomer molecules. The polymer is said to be a homopolymer and if it is derived from two or more different types of monomer molecules , the polymer is said to be a copolmer. Both homopolymers and copolymers may be formed either by addition or condensation reactions. Alkenes and dienes polymerize by addition (chain

growth) mechanism involving carbocations , carbanions or free radical intermediates. Dienes (chloroprene, isoprene, etc.) polymerize by 1, 4-addition mechanism to give cis-or trans-polymers. Natural rubber is quite soft and tacky but these properties can be improved by a process called vulcanization.

In contrast , bifunctional monomer molecules undergo , condensation or step-growth polymerization. Polymers which can be heated and reshaped as many times as desired are called thermoplastics , (polythene, polystyrene, PVC, teflon, etc.) while those which can be heated only once to give a particular shape are called thermosetting polymers (bakelite, melmac, etc.).

Which of the following sets contain only copolymers ?

A. SBR, Glypal, Nylon6,6

B. Nylon 6, Butyl rubber, Neoprene

C. Polythene, Polyester , PVC

D. Melmac, Bakelite , Teflon

Answer: A

Watch Video Solution

Competition Focus Jee Main And Advanced Medical Entrance Special Iv Matching Type Questions

1. Match the entries of Column I with appropriate entries of Column II and choose the correct option out of the four options (a),(b),(c),(d) given at the end of each question.

Column I		Column II
(A) PHBV	(*p*)	Elastomer
(B) Polyester	(*q*)	Prepared by coordination polymerization
(C) Natural rubber	(*r*)	Synthetic fibre
(D) HDPE	(*s*)	Biodegradable

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

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

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

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

Answer: B

Watch Video Solution

2. Match the entries of Column I with appropriate entries of Column II and choose the correct option out of the four options (a),(b),(c),(d) given at the end of each question.

Column I	Column II
(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

Watch Video Solution

3. Match the entries of Column I with appropriate entries of Column II and choose the correct option out of the four options (a),(b),(c),(d) given at the end of each question.

List I (Polymers)	List II (Monomers)
(A) Buna-N	(*p*) Phthalic acid and ethylene glycol
(B) Nylon-6,6	(*q*) Terephthalic acid and ethylene glycol
(C) Dacron	(*r*) Hexamethylenediamine and adipic acid
(D) Glyptal plastic	(*s*) Acrylonitrile and butadiene

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

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

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

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

Answer: D

Watch Video Solution

Competition Focus Jee Main And Advanced Medical Entrance Special V Matching Type Questions

1.

Column I	Column II
(A) cis-Polyisoprene	(p) Thermosetting
(B) Neoprene	(q) Addition
(C) Bakelite	(r) Condensation
(D) Polyester	(s) Biodegradable

Watch Video Solution

Watch Video Solution

2.

Column I	Column II
(A) cellulose	(p) natural polymer
(B) nylon-6, 6	(q) synthetic polymer
(C) protein	(r) amide linkage
(D) sucrose	(s) glycoside linkage

Watch Video Solution

Competition Focus Jee Main And Advanced Medical Entrance Special Vi Integer Type Questions

1. How many double bonds are present in the repeating structural units of polythene?

Watch Video Solution

2. Amongst the following,the total number of elastomers is :

Natural rubber, polypropylene, polyethene, vulcanized rubber, nylon-6 , polyvinyl chloride , Buna-N, Chloroprene, Buna-S, Polystyrene

Watch Video Solution

3. Amogst the following the total number of thermoplastics is: Polythene, PVC, teflon, PAN, PMMA, polyster, bakelite, nylon 6, melamine formaldehyde.

Watch Video Solution

4. Which of the following is thermosetting polymer?

Watch Video Solution

5. The number of condensation copolymers among the following is_____.

SBR, polyester, bakelite, nylon-6, PVC, starch, nylon-6,6, glyptal, natural rubber.

Watch Video Solution

6. The total number of lone pairs of electrons in melamine is:

A.

B.

C.

D.

Answer: 6

Watch Video Solution

7. How many of the following are biodegradable polymers? PVC, PAN, polystyrene, cellulose, dextron, glyptal, PHBV, nylon 6,6, nylon-2-nylon-6.

Watch Video Solution

Competition Focus Jee Main And Advanced Medical Entrance Special Vii Assertion Reason Type Questions Type I

1. Statement-1 . Natural rubber is an elastomer.

Statement-2 . The intermolecular forces of attraction are due to dipole- dipole interactions.

A. Statement -1 is True , Statement -2 is True , Statement-2 is a correct explanation for Statement-1.

B. Statement-1 is True , Statement-2 is True , Statement-2 is not a correct explanation for Statement-1.

C. Statement-1 is True , Statement-2 is False.

D. Statement-1 is False , Statement-2 is True.

Answer: C

Watch Video Solution

2. Statement-1 . HDPE is a branched chain polymer.

Statement-2. it is prepared by addition polymerization.

A. Statement -1 is True , Statement -2 is True , Statement-2 is a correct explanation for Statement-1.

B. Statement-1 is True , Statement-2 is True , Statement-2 is not a correct explanation for Statement-1.

C. Statement-1 is True , Statement-2 is False.

D. Statement-1 is False , Statement-2 is True.

Answer: D

Watch Video Solution

3. Statement-1. Polyester is a copolymer.

Statement-2 The repeating structural unit of polyester is derived from two types of monomer units , ethylene glycol and terephthalic acid.

A. Statement -1 is True , Statement -2 is True , Statement-2 is a correct explanation for Statement-1.

B. Statement-1 is True , Statement-2 is True , Statement-2 is not a correct explanation for Statement-1.

C. Statement-1 is True , Statement-2 is False.

D. Statement-1 is False , Statement-2 is True.

Answer: A

Watch Video Solution

4. Statement-1. Nylon -6,6 is a thermoplastic polymer.

Statement-2 It is prepared by condendation polymerization of hexamethylenediamine and adipic acid.

A. Statement -1 is True , Statement -2 is True , Statement-2 is a correct explanation for Statement-1.

B. Statement-1 is True , Statement-2 is True , Statement-2 is not a correct explanation for Statement-1.

C. Statement-1 is True , Statement-2 is False.

D. Statement-1 is False , Statement-2 is True.

Answer: B

Watch Video Solution

5. A: Bakelite is hard and has high melting point.

R: Interparticle forces of attraction in it area H-bonding.

A. If both assertion and reason are true , and reason is the true explanation of the assertion.

B. If both assertion and reason are true , but reason is not the true explanation of the assertion.

C. If assertion is true , but reason is false.

D. If both assertion and reason are false.

Answer: C

Watch Video Solution

Competition Focus Jee Main And Advanced Medical Entrance Special Vii Assertion Reason Type Questions Type Ii

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

R: Teflon is a thermosetting polymer.

A. If both assertion and reason are true , and reason is the true explanation of the assertion.

B. If both assertion and reason are true , but reason is not the true explanation of the assertion.

C. If assertion is true , but reason is false.

D. If both assertion and reason are false.

Answer: C

Watch Video Solution

2. A : Polypropylene is an addition polymer.

R:Addition polymerization occurs among molecules which contain double bonds.

A. If both assertion and reason are true , and reason is the true explanation of the assertion.

B. If both assertion and reason are true , but reason is not the true explanation of the assertion.

C. If assertion is true , but reason is false.

D. If both assertion and reason are false.

Answer: A

3. A: Polybutadiene is an example of chain growth polymer.

R: Copolymerization of butadiene and styrene gives Buna-S.

A. If both assertion and reason are true , and reason is the true explanation of the assertion.

B. If both assertion and reason are true , but reason is not the true explanation of the assertion.

C. If assertion is true , but reason is false.

D. If both assertion and reason are false.

Answer: B

Watch Video Solution

4. A: Glyptal is obtained by condensation polymerization of ethylene glycol and terephthalic acid.

R: Glyptal is used in the manufacture of fabrics.

A. If both assertion and reason are true , and reason is the true explanation of the assertion.

B. If both assertion and reason are true , but reason is not the true explanation of the assertion.

C. If assertion is true , but reason is false.

D. If both assertion and reason are false.

Answer: D

Watch Video Solution

5. Assertion : $1,3-$ Butadiene is the monomer for natural rubber.

Reason : Natural rubber is formed though anionic addition polymerization.

A. If both assertion and reason are true , and reason is the true explanation of the assertion.

B. If both assertion and reason are true , but reason is not the true explanation of the assertion.

C. If assertion is true , but reason is false.

D. If both assertion and reason are false.

Answer: D

Watch Video Solution

6. Assertion : Vulcanization increases the hardness of natural rubber.

Reason: Vulcanization introduces the polysulphide bridges at reactive sites.

A. If both assertion and reason are true , and reason is the true explanation of the assertion.

B. If both assertion and reason are true , but reason is not the true explanation of the assertion.

C. If assertion is true , but reason is false.

D. If both assertion and reason are false.

Answer: A

Watch Video Solution

7. Assertion : Neoprene can be further hardened by heating on the presence of sulpur

Reason : Neoprene contains allylic double bonds which help in introducing sulpur bridges between different polymer chams

A. If both assertion and reason are true , and reason is the true explanation of the assertion.

B. If both assertion and reason are true , but reason is not the true explanation of the assertion.

C. If assertion is true , but reason is false.

D. If both assertion and reason are false.

Answer: A

Watch Video Solution

8. A: PMMA is used for making lenser and light cover.

R:It has excellent light transmission properties.

A. If both assertion and reason are true , and reason is the true explanation of the assertion.

B. If both assertion and reason are true , but reason is not the true explanation of the assertion.

C. If assertion is true , but reason is false.

D. If both assertion and reason are false.

Answer: A

Watch Video Solution

Important Questions For Board Examination

1. can enzyme be called a polymer?

Watch Video Solution

2. What is the repeating unit in the condensation polymer obtained by combining succinic acid $(HOOCH_2CH_2COOH)$ and ethylene glycol $(HOCH_2CH_2OH)$?

Watch Video Solution

3. Is $\left[CH_2—CH(C_6H_5)\right]_n$

(b) Is it an addition or a condensation polymer.

Watch Video Solution

4. (a) Can a copolyer be formed in both addition and condensation polymerization ? Explain.

(b) Can a homopolymer be formed in both addition and condensation polymerization ? Explain.

Watch Video Solution

5. Define the following with two examples in each case

(i) Natural polymers (ii) Semi-synthetic polymers and (iii) Synthetic polymers.

Watch Video Solution

6. How are polymers classfied on the basis of structure ? Give one example of each type.

Watch Video Solution

7. On the basis of molecules forces classify the polymers into elastomers and fibres. SBR, Buna-N, Nylon-6, Natural rubber, Rayon

Watch Video Solution

8. Define thermoplastics and thermosetting polymers with two examples of each.

Watch Video Solution

9. Arrange the following polymers in increasing order of their intermolecular forces of attraction : nylon 6,6 , buna -S , polythene.

Watch Video Solution

10. How can you differentiate between addition and condensation polymerisation ?

Watch Video Solution

11. Why are addition polymers also called chain growth polymers and condensation polymers are called step growth polymers ? Explain.

Watch Video Solution

12. Can nucleic acid protein and starch be considered as step growth polymers?

Watch Video Solution

13. To have practical applications why are cross links quetioined in rubber?

Watch Video Solution

14. What is the structural difference between HDP and LDP? How does the structure account for different behaviour and nature hence use of polymer?

Watch Video Solution

15. What is the main constituent of bubble gum ?

Watch Video Solution

16. Free radical polymerization of stryene gives a product in which the phenyl groups are on alternate carbon atoms rather than on adjacent carbon atoms. Explain.

Watch Video Solution

17. State the significance of numbers 6 and 6,6 in the polymer names nylon -6 and nylon 6,6. or in nylon 6,6 what does the designation 6,6 mean ?

Watch Video Solution

Watch Video Solution

18. Write the monomers of buna -S, buna-N,and neoprene. Write their structure.

Watch Video Solution

19. How is nylon , 6,6 synthesized ? Write the names and structure of its monomer units.

Watch Video Solution

20. Starting with cyclohexane , how will you prepare nylon 6 ?

Watch Video Solution

21. Write the repeating structural unit of dacron.

Watch Video Solution

22. How does the presence of double bonds in natural rubber molecules influence their structure and reactivity ?

Watch Video Solution

23. What is vulcanization for rubber ? Discusses the main purpose of vulcanization of rubber

Watch Video Solution

24. Differentiate novolac and bakelite on the basis of their structures.

Watch Video Solution

25. What is a biodegradable polymer ? Give an example of a biodegradable aliphatic polyester.

Watch Video Solution

26. What is dextron ? How is it prepared ? Write its one use.

Watch Video Solution

27. Draw the structure of cis - polyisoprene and explain why does it possess elastic property ?

 Watch Video Solution