CHEMISTRY

BOOKS - CBSE COMPLEMENTARY MATERIAL

CHEMISTRY (HINGLISH)

POLYMERS

Multiple Choice Questions

1. An example of biopolymer is

A. Tefflon

B. Rubber

C. Nylon-66

D. DNA

Answer: C

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2. Which of the following polymers do not involve crosslinkages?

A. Melamine

B. Bakelite

C. Polythene

D. Vulcanised rubber

Answer: C

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3. Polymer obtained by condensation polymerisation is:

A. Polythene

B. Tefflon

C. Phenol-formaldehyde

D. Nitrite rubber

Answer: D

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4. Which is an example of thermosetting plastic?

A. Polythene

B. PVC

C. Neophene

D. Bakelite

Answer: D

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5. Natural rubber is a polymer of:

A. Butadine

B. Ethyne

C. Styrene

D. Poly isophene

Answer: A

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6. Terylene is a condensation polymer of ethylene glycol and

A. Benzoic acid

B. Pnthalic acid

C. Salicyclic acid

D. Terephthalic acid

Answer: A

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7. The process involving heating of rubber with sulphur is called:

A. vulcanisation

B. galvanisation

C. sulphonation

D. Bessemerisation

Answer: B

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8. Interparticle forces present in nylon-66 are:

A. Vauder wall's forces

B. Hydrogen bonding

C. Dipole dipole interactions

D. None of these

Answer: D

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

A. Cellulose

B. Anylose

C. Amylopectin

D. G-lycogen

Answer: A

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10. The commercial name of polyacrylonitrile is

A. Dacron

B. Orlon (acrilaw)

C. PVC

D. Bakelite

Answer: B

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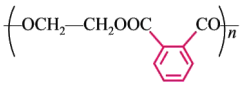
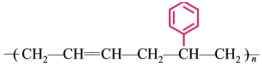
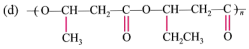
11. In which of the following polymers ethylene gylcol is one of the monomer units?

A. 

B. $-(CH_2-CH_2)_n-$

C. 

D. 

Answer: A

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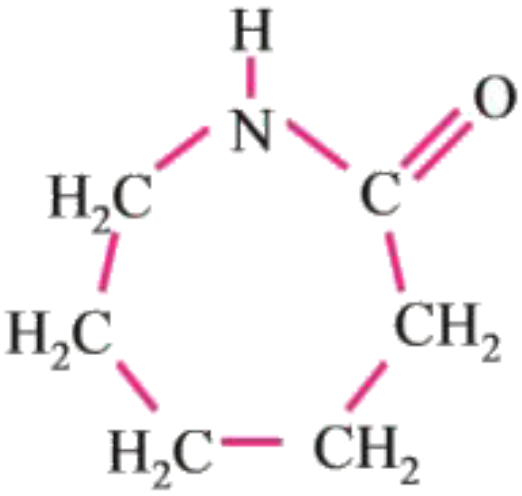
12. Which of the following polymer can be formed by using the following monomer unit?



A. Nylon 6, 6

B. Nylon 2-nylon6

C. Melamine polymer

D. Nylon-6

Answer: D

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13. Which of the following characteristics of thermosetting polymers?

A. Heavily branched cross linked polymers

B. I inrar slightly branched long chain molecule

C. Become infusible on moulding so cannot be reused.

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

Answer: A::C

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14. Which of the following monomers form biodegradable polymers?

A. 3-hydroxybutanoic acid + 3 – hydroxypentanoic acid

B. G-lycins + amino caproic acid

C. Ethylene glycol + phthalic acid

D. Capulactum

Answer: A::B

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

A. Nylon

B. Polystyrene

C. Rubber

D. Polyesters

Answer: A::D

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Matching Column Type

1. Match the polymers given in Column-I with their commercial names given in column-II.

(i) polyster of glycol and phthalic acid	(a) Novolac
(ii) Copolymer of 1, 3-butadine	(b) G-lyptal
(iii) Phenol and formaldehyde	(c) Buna-S
(iv) Polyester of glycol and brepthalic acid	(d) Bura-N
(v) Copolymer of 1, 3-butadiene and acrylonitrite	(e) Dacron

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2. 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	

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Assertion And Reason Type

1. Assertion : Polymerides are bust used as fiber because of high tensile strength.

Reason : Strong intermolecular forces (like hydrogen bonding within polyamides) lead to close tracking of chains and increase the crystalline character, hence, provide high tensile strength to polymers.

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

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

C. Both assertion and reason are wrong statement.

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

Answer: b

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2. Assertion (A) Network polymers are thermosetting

Reason (R) Network Polymers have high molecular mass

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

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

C. Both assertion and reason are wrong statement.

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

Answer: a

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Integer Type Question

1. The number of thermoplastic polymers among tefflon, polythene, PVC, polystyrene, bakelite, nylon 6, Melamine

formaldehyde, PMMA, are:

0	1	2	3	4	5	6	7	8	9

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Very Short Answer Type Questions

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

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2. Give an example of elastomers .

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3. Why is bakelite a theromosetting polymer ?

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4. Write the monomers of Buna-N.

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

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6. Write the structure and one use of urea formaldehyde resin.

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7. Is $\left(-CH_2 - \underset{Cl}{CH} \right)_n$ a homopolymer or copolymer ?

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8. Which out of Buna-S, protenis and PVC, is a natural polymer ?

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9. Based on molecular forces what type of polymer is neoprene ?

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10. Which of the following is a fibre ?

Nylon, Neoprene, PVC

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Short Answer I Type Questions

1. Draw the structure of monomers of each of the polymer : PVC

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2. Draw the structure of monomers of each of the polymer : Nylon-6

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3. 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)?

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4. Draw the structure of monomers of the following polymer : Teflon

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5. Draw the structure of monomers of the following polymer : Polythene

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6. Name the two groups into which polymers are classified on the basis of magnitude of intermolecular forces.

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7. Mention two important uses of each of the following :

Bakelite

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8. Mention two important uses of each of the following :

Nylon-6

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

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10. What is step growth polymerisation ? Explain with an example.

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11. What is the difference between elastomers and fibres ? Give one example of each.

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12. Mention the important uses of each : Nylon-6, 6

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13. Mention the important uses of each : PVC

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14. Arrange the following polymers in the order of increasing intermolecular forces : Nylon-6, Buna-S, Polythene

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15. Arrange the following polymers in the order of increasing intermolecular forces : Nylon-6, Neoprene, Polyvinyl chloride

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

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17. What is biodegradable polymer ? Give an example of a biodegradable polymer.

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

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19. Name a polymer each for the following applications :

Insulation of electrical switches

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20. Name a polymer each for the following applications :

Making laminated sheets

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

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Short Answer Ii Type Questions

1. Write the names and structure of the monomers of the following polymer : Buna-S

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

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3. Write the names and structure of the monomers of the following polymer : Nylon-6

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4. Write name and structure of monomers of following polymer : Bakelite

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5. Write the names and structure of the monomers of the following polymer : Nylon-6

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6. Draw the structure of monomers of the following polymer : Polythene

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7. Write name and structure of monomers of following polymer : Polystyrene

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8. Write name and structure of monomers of following polymer : Dacron

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9. Write name and structure of monomers of following polymer : Teflon

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

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11. Identify the monomers in the following polymer :

$$\left[-HN(CH_2)_6NHCO(CH_2)_4CO- \right]$$

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12. Arrange the following in increasing order of intermolecular forces. Polystyrene, Terylene, Buna-S

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

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14. Write chemical equation for the synthesis of : Nylon-6, 6

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15. Write chemical equation for the synthesis of : Neoprene

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16. Write chemical equation for the synthesis of : Terylene

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17. Write the monomers which are used for the synthesis of following polymer : Terylene

Indicate the type of polymerisation for each which forms polymer.

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18. Write the monomers which are used for the synthesis of following polymer : Polythene

Indicate the type of polymerisation for each which forms polymer.

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19. Write the monomers which are used for the synthesis of following polymer : Bakelite

Indicate the type of polymerisation for each which forms polymer.

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20. How are polymers classified on the basis of mode of polymerisation ? Explain with examples.

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21. A monomer of a polymer on ozonolysis gives two moles of CH_2O and one mol of $CH_3 - \overset{O}{\overset{||}{C}} - CHO$. Write the structure of monomer and polymer and each step of reaction. Structure of monomer :

$$CH_2O + O = \overset{CH_3}{\underset{|}{C}} - OCH_2 \rightarrow CH_2 = \overset{CH_3}{\underset{|}{C}} - CH = CH_2$$

Structure of polymer :

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22. Can a copolymer be formed in both addition and condensation polymerisation ? Explain with examples.

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Long Answer Type Questions

1. How are following polymer obtained ? Write the names and structures of monomers and structure of

respective polymer : Dacron

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2. How are following polymer obtained ? Write the names and structures of monomers and structure of respective polymer : Nylon-6

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3. How are following polymer obtained ? Write the names and structures of monomers and structure of respective polymer : Buna-N

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4. How are following polymer obtained ? Write the names and structures of monomers and structure of respective polymer : Glyptal

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5. How are following polymer obtained ? Write the names and structures of monomers and structure of respective polymer : PHBV

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