

**Choose the correct answers :**

- Which of the following statements is/are correct?
  - (1) Polyethylene contains double bonds
  - (2) The monomer used to make teflon is  $C_2F_4$
  - (3) Condensation polymers are known as copolymers
  - (4) A denatured protein could have the same primary structure as the active protein.
- Melamine polymer is copolymer of
  - (1) Melamine and acetaldehyde
  - (2) Melamine and formaldehyde
  - (3) Phenol and formaldehyde
  - (4) None of the above.
- Which one of the following pairs is not correctly matched ?
  - (1) Terylene : Condensation polymer of terephthalic acid and ethylene glycol
  - (2) Perspex : A homopolymer of methylmethacrylate
  - (3) Taflon : Thermally stable cross-linked polymer of phenol and formaldehyde
  - (4) Synthetic rubber : A copolymer of butadiene and styrene .
- Polyacrylonitrile, characterized by the repeating unit, is made from which of the following monomer ?
  - (1)  $CH_3CH_2CN$
  - (2)  $HOCH_2CH_2CH_3$
  - (3)  $CH_3CH = CHCN$
  - (4)  $CH_2 = CHCN$ .
- Bakelite is obtained from phenol and formaldehyde. The initial reaction between the two compounds is an example of
  - (1) Aromatic electrophilic substitution
  - (2) Aromatic nucleophilic Substitution
  - (3) Free radical reaction
  - (4) Aldol reaction.
- Match list I with list II and select the correct answer using the codes given below the lists.

<i>List I</i>	<i>List II</i>
(Polymer)	(Polymerizing units)
(1) Bakelite	1. Butadiene and styrene
(2) Dacron	2. Phenol and methanal
(3) Nylon-66	3. 1, 2 - dihydroxyethane and dimethylterephthalate
(4) Buna-S	4. Urea and methanal
	5. 1, 6-hexanedioic acid and 1, 6-diamino hexane

**Codes :**

	(1)	(2)	(3)	(4)
(1)	4	3	5	1
(2)	2	3	5	1
(3)	5	2	3	1
(4)	None of these			

- Match list I with list II and select the correct answer using the codes given below the lists.

*List I*

- (1) Phenol + formaldehyde.
- (2) Terephthalic acid + ethylene glycol
- (3) Caprolactam
- (4) Butadiene + styrene

*List II*

1. Synthetic rubber
2. Bakelite
3. Nylon-6
4. terylene

**Codes :**

	(1)	(2)	(3)	(4)
(1)	2	3	4	1
(2)	3	1	2	4
(3)	2	4	3	1
(4)	None of these			

- Plexiglass (orperpox) is
  - (1) Polyacrylonitrile
  - (2) Polyethylacrylate
  - (3) Polystyrene
  - (4) Polymethylmethacrylate.
- On the basis of intermolecular forces, polymers are classified as
  - (1) Elastomers, Fibres, Thermoplastics and Thermosetting

- (2) Elastomers, Fibres, Chain growth and Step growth  
 (3) Addition polymers and Condensation polymers  
 (4) None of these
10. If  $N_1, N_2, N_3, \dots$  are number of molecules with molecular masses  $M_1, M_2, M_3, \dots$  respectively, then average molecular mass is expressed as
- (1)  $\frac{\sum N_i M_i^2}{N_i M_i}$  (2)  $\frac{\sum N_i M_i}{\sum N_i}$   
 (3) Both of these (4) None of these
11. The ratio of weight average molecular mass to number average molecular mass is called as
- (1) Planck's disposal index  
 (2) Polydiagonal index  
 (3) Polydispersity index  
 (4) None of these
12. Which of the following represent a bi-liquid propellant?
- (1)  $N_2O_4$  + unsymmetrical dimethylhydrazine  
 (2)  $N_2O_4$  + acrylic rubber  
 (3) Nitroglycerine + nitrocellulose  
 (4) Polybutadiene + ammonium perchlorate
13. Coordination polymerization was developed by
- (1) Zeigler and Natta  
 (2) Linus Pauling  
 (3) Beckmann  
 (4) None of these

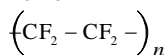
## CBSE – PMT

1. Structures of some common polymers are give which one is *not* correctly presented?

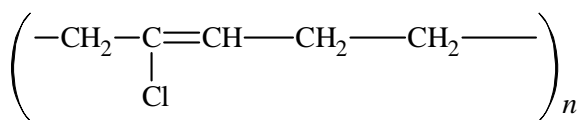
(1) Nylon 66



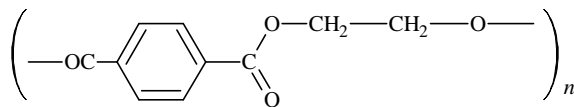
(2) Teflon



(3) Neoprene



(4) Terylene



2. Which one of the following statements is *not true*?

- (1) In vulcanization, the formation of sulphur bridges between different chains make rubber harder and stronger  
 (2) Natural rubber has the *trans*-configuration at every double bond  
 (3) Bona-S is a copolymer of butadiene and styrene  
 (4) Natural rubber is a 1, 4-polymer of isoprene

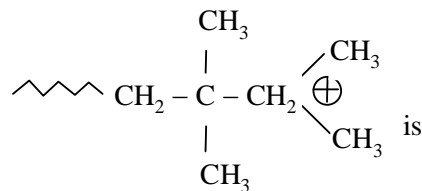
3. Which one of the following polymers is prepared by condensation polymerization ?

- (1) Teflon (2) Rubber  
 (3) Styrene (4) Nylon-66

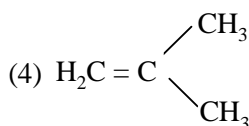
4.  $\sim\sim\sim[\text{NH}(\text{CH}_2)\text{NHCO}(\text{CH}_2)_4\text{CO}]_n\sim\sim\sim$  is a

- (1) thermosetting polymer  
 (2) homopolymer  
 (3) copolymer  
 (4) addition polymer

5. The monomer of the polymer



- (1)  $\text{CH}_3\text{CH} = \text{CHCH}_3$   
 (2)  $\text{CH}_3\text{CH} = \text{CH}_2$   
 (3)  $(\text{CH}_3)_2\text{C} = \text{C}(\text{CH}_3)_2$



6. Which one of the following is a chain growth polymer?

- (1) Protein (2) Starch  
 (3) Nucleic acid (4) Polystyrene

7. Which of the following is responsible for depletion of ozone layer in the upper strata of the atmosphere ?

- (1) Freons (2) Polyhalogens  
 (3) Ferrocene (4) Fullerenes

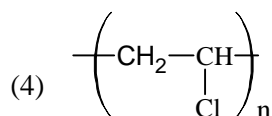
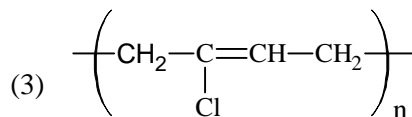
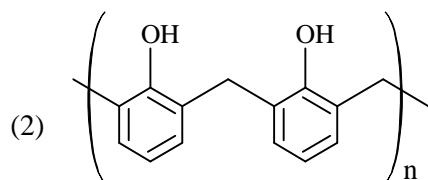
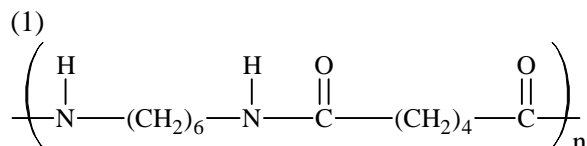
8. Of the following which one is classified as polyester polymer?

- (1) Terylene (2) Backelite  
 (3) Melamine (4) Nylon-66

9. Which one of the following organic compound polymerizes to form the polyester Dacron?

- (1) Terephthalic acid and ethylene glycol
- (2) Benzoic acid and para HO - (C<sub>6</sub>H<sub>4</sub>) - OH
- (3) Propylene and para HO - (C<sub>6</sub>H<sub>4</sub>) - OH
- (4) Benzoic acid and ethanol

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



11. Biodegradable polymer which can be produced from glycine and aminocaproic acid is:

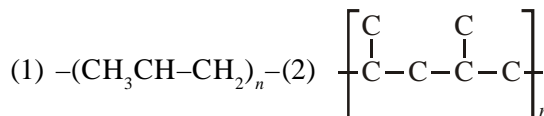
- (1) Buna - N
- (2) Nylon 6, 6
- (3) Nylon 2-nylon 6
- (4) PHBV

## DPMT

1. Which polymers occur naturally?

- (1) Starch and Nylon
- (2) Starch and Cellulose
- (3) Proteins and Nylon
- (4) Proteins and PVC

2. Which one represents addition polymer of propene



- (3) both (1) & (2)
- (4) none of these

3. Which of the following is not a copolymer

- (1) Nylon 6
- (2) Nylon 6, 10
- (3) Nomex
- (4) Decron

4. Which is not a polymer

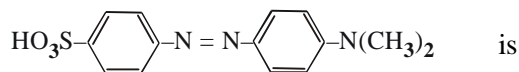
- (1) sucrose
- (2) enzyme
- (3) starch
- (4) teflon

5. Which of the following statement is not correct?

- (1) Caprolactam is the monomer of nylon-6
- (2) Terylene is a polyester polymer
- (3) Phenol formaldehyde resin is known as bakelite
- (4) The monomer of natural rubber is butadiene

**BIOMOLECULES, BIOLOGICAL PROCESSES,**  
**CHEMISTRY IN ACTION**

1. The chromophore in the dye



- (1)  $-\text{N}(\text{CH}_3)_2$             (2)  $-\text{SO}_3\text{H}$   
(3)  $-\text{C}_6\text{H}_5$                 (4)  $-\text{N}=\text{N}-$

2. Match list I with list II and select the correct answer using the codes given below the list .

*List I*

(Dyes)

- (1) Orange-I  
(2) Malachite green  
(3) Indigo  
(4) Alizarin

*List II*

(Structural unit)

1. Anthraquinone  
2. Indigoid  
3. Phthalein  
4. Azo  
5. Triphenyl methane

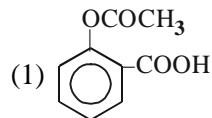
**Codes :** (1)    (2)    (3)    (4)

- (1)    4    5    2    1  
(2)    5    4    2    1  
(3)    4    3    2    1  
(4)    None of these

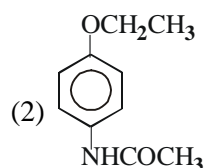
3. Match list I with list II and select correct answer using the codes given below the lists.

*List I*

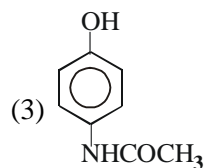
*List II*



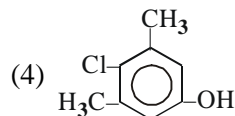
1. Component of dettol



2. Bithional



3. Aspirin



4. Phenacetin

5. Paracetamol

**Codes :** (1)    (2)    (3)    (4)

- (1)    4    3    1    2  
(2)    3    4    2    1  
(3)    3    4    5    1  
(4)    None of these

4. Match list I with list II and select the correct answer using the codes given below lists.

*List I*

(Dyes)

- (1) Orange I  
(2) Aniline Yellow  
(3) Martius yellow  
(and congo red)  
(4) Alizarin

*List II*

(Types of dyes)

1. Mordant dye  
2. Acid dye  
3. Fibre-reactive dye  
4. Basic dye  
5. Direct dye

**Codes :** (1)    (2)    (3)    (4)

- (1)    2    4    5    1  
(2)    2    4    1    5  
(3)    2    4    3    1  
(4)    None of these

5. Match list I with list II and select the correct answer using the codes given below.

*List I*

*List II*

- (1) Chloramphenicol  
(2) Paracetamol  
(3) Luminal  
(4) Acrylic rubber(s)  
 $+ \text{N}_2\text{O}_4(l)$

- (5) Propellant

**Codes :** (1)    (2)    (3)    (4)

- (1)    3    4    2    5  
(2)    2    3    4    1  
(3)    3    4    1    5  
(4)    None of these

6. During hydrogenation of oils, higher melting 'vegetable ghee' is formed because

- (1) Hydrogen is dissolved in the oil  
(2) Hydrogen combines with oxygen of the oil  
(3) Esters of unsaturated fatty acids are reduced to those of saturated acids  
(4) Hydrogen drives off the impurities from the oil

7. Structurally a biodegradable detergent should contain a

- (1) Normal alkyl chain  
(2) Branched alkyl chain  
(3) Phenyl side chain  
(4) Cyclohexyl side chain

8. Which of the following dye has a nitro group ?  
 (1) Malachite (2) Indigo  
 (3) Aniline yellow (4) Martius yellow
9. A substance which can act both as an antiseptic and disinfectant is  
 (1) Aspirin (2) Chloroxylenol  
 (3) Bithional (4) Phenol
10. Thrust imparted to the rocket is governed by the  
 (1) Third law of thermodynamics  
 (2) Gravitational law  
 (3) Newton's third law  
 (4) None of these
11. 'Placedo' is often given to patients. It is  
 (1) An antidepressant  
 (2) A broad spectrum antibiotic  
 (3) A sugar pill (4) A tonic
12. An aldohexose (e.g., glucose) and 2-oxohexose (e.g., fructose) can be distinguished with the help of  
 (1) Tollen's reagent (2) Fehling's solution  
 (3) Benedict solution (4)  $\text{Br}_2 / \text{H}_2\text{O}$ .
13. The open-chain glucose on oxidation with  $\text{HIO}_4$  gives  
 (1)  $5 \text{HCOOH} + \text{H}_2\text{C} = \text{O}$   
 (2)  $4 \text{HCOOH} + 2 \text{H}_2\text{C} = \text{O}$   
 (3)  $3 \text{HCOOH} + 3 \text{H}_2\text{C} = \text{O}$   
 (4)  $2 \text{HCOOH} + 4 \text{H}_2\text{C} = \text{O}$ .
14. Choose the correct relationship for  $\alpha$ -D-glucose (1) and  $\beta$ -D-glucose(2)  
 (1) A and B are epimers;  
 (2) A and B are crystal modification  
 (3) A is a pyranose sugar and B is furanose sugar  
 (4) A is an aldose and B is a ketose.
15. Glucose and fructose give the same osazone. One may, therefore, conclude that  
 (1) Glucose and fructose have identical structures  
 (2) Glucose and fructose are anomers  
 (3) The structures of glucose and fructose have mirror-image relationship  
 (4) The structures of glucose and fructose differ

only in those carbon atoms which take part in osazone formation.

16. Pick out correct statements.  
 (1) In an electrolysis experiment, amino acids migrate at the isoelectric point towards electrodes  
 (2) *p*-aminobenzenesulphonic acid is a dipolar ion: while *p*-aminobenzoic acid is not  
 (3) Sulphanilic acid is soluble in base, but not in acid  
 (4)  $\text{H}_3\text{N}^+\text{CH}_2\text{COOH}$  ( $pK_a = 2.4$ ) is more acidic than  $\text{RCH}_2\text{COOH}$  ( $pK_a = 4 - 5$ ).

17. List I has the reagents which react with glycine and list II the products formed. Match list I and list II and select the correct answer using the codes gives below

<i>List I</i>	<i>List II</i>
(Reagents)	(Products)
(1) $\text{CH}_3\text{COCl}$	1. $\text{C}_6\text{H}_5\text{CONHCH}_2\text{COO}^-\text{Na}^+$
(2) $\text{HNO}_2$	2. $\text{Cl}^-(\text{H}_3\text{N}^+\text{CH}_2\text{COOC}_2\text{H}_5)$
(3) $\text{C}_2\text{H}_5\text{OH} + \text{HCl}$	3. $\text{CH}_3\text{CONHCH}_2\text{COOH}$
(4) $\text{C}_6\text{H}_5\text{COCl} + \text{NaOH}$	4. $\text{HOCH}_2\text{COOH} + \text{N}_2$

**Codes :**

	(1)	(2)	(3)	(4)
(1)	4	2	1	3
(2)	4	3	2	1
(3)	3	4	2	1
(4)	None of these			

18. Match list I with list II and select the correct answer using the codes given below the lists.

<i>List I</i>	<i>List II</i>
(1) Nucleic acids	1. D.N.A.
(2) Uracil	2. Hormones
(3) Thymine	3. Polynucleotides
(4) double-helix structure	4. R.N.A.

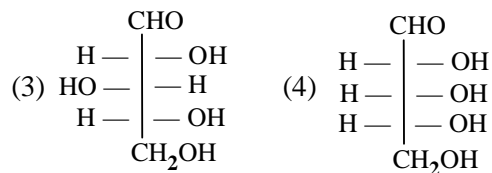
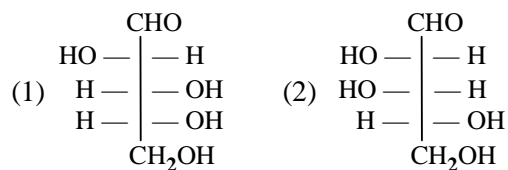
**Codes :**

	(1)	(2)	(3)	(4)
(1)	4	3	1	1
(2)	3	4	1	1
(3)	3	1	4	1
(4)	None of these			

**CHEMISTRY IN ACTION**

19. Pick out the incorrect statement about ATP.
- (1) It is a nucleotide
  - (2) It contains the purine, adenine
  - (3) The enzyme-catalysed hydrolysis of ATP to ADP and AMP is accompanied by absorption of energy
  - (4) Energy is stored in the cell in the form of ATP.
20. If the sequence of bases in one strand of DNA is ATGACTGTC, then the sequence of bases in its complementary strand is
- (1) TACTGACAG      (2) TUCTGUCUG
  - (3) GUAGTUAUG      (4) None of these
21. Match list I with list II and select the correct answer using the codes given below .
- |                   |                     |
|-------------------|---------------------|
| <i>List I</i>     | <i>List II</i>      |
| (1) Pepsin        | 1. Genetic material |
| (2) Nucleic acid  | 2. Sex hormone      |
| (3) Ascorbic acid | 3. Vitamin C        |
| (4) Testosterone  | 4. Antibiotic       |
|                   | 5. Digestive enzyme |
- Codes :** (1)      (2)      (3)      (4)
- |                        |   |   |   |
|------------------------|---|---|---|
| (1)      4             | 1 | 3 | 2 |
| (2)      5             | 1 | 2 | 3 |
| (3)      5             | 1 | 3 | 2 |
| (4)      None of these |   |   |   |
22. Which of the following is a polysaccharide ?
- (1) Glucose              (2) Galactose
  - (3) sucrose              (4) Pectines.
23. Starch can be used as an indicator for the detection of traces of
- (1) Glucose in aqueous solution
  - (2) Proteins in blood
  - (3) Iodine in aqueous solution
  - (4) Urea in blood
24. Which of the following statements about ribose is incorrect ?
- (1) It is a polyhydroxy compound
  - (2) It is an aldehyde sugar
  - (3) It has six carbon atoms
  - (4) It exhibits optical activity

25. The letter 'D' in carbohydrates represents
- (1) Its direct synthesis      (2) Its dextrorotation
  - (3) Its mutarotation      (4) Its configuration
26. Which of the following is the structure of D-xylose?

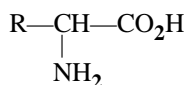


27. Glucose gives the silver mirror test with ammoniacal solution of silver nitrate because it contains the group
- (1) Aldehyde              (2) Ester
  - (3) Ketone              (4) Amide
28. The ultimate products of oxidation of most of hydrogen and carbon in foodstuffs are
- (1) H<sub>2</sub>O alone              (2) CO<sub>2</sub> alone
  - (3) H<sub>2</sub>O and CO<sub>2</sub>      (4) None of these
29. Proteins do not respond to
- (1) Biuret test              (2) Helder's ring test
  - (3) Ninhydrin test      (4) Lucas test
30. It is best to carry out reactions with sugars in neutral of acidic medium not in alkaline medium. This is because in alkaline medium sugar undergoes one of the following changes.
- (1) Decomposition      (2) Inversion
  - (3) Rearrangement      (4) Racemization
31. The calorific values of fats, carbohydrates and proteins vary in the order
- (1) Fats > carbohydrates > proteins
  - (2) Fats > proteins > carbohydrates
  - (3) Carbohydrates > proteins > fats
  - (4) None of these
32. Carbohydrates are sweet because of
- (1) Hydrogen bonding
  - (2) Covalent bonding
  - (3) Electrovalent bonding
  - (4) None of these

33. Molich's test is done for the detection of  
 (1) Alkyl halide           (2) Carbohydrate  
 (3) Alkaloid               (4) Fat
34. An example of a water soluble vitamin is  
 (1) Vitamin A               (2) Vitamin C  
 (3) Vitamin D               (4) Vitamin E
35. The hormone, epinephrine, is secreted by the organ  
 (1) Testis                   (2) Ovary  
 (3) Adrenal Medulla       (4) Pancreas
36. The number of atoms of the ring structure of pyranoses are
- |        |        |
|--------|--------|
| Carbon | Oxygen |
| (1) 5  | 1      |
| (2) 4  | 2      |
| (3) 4  | 1      |
| (4) 3  | 2      |

37. Which of the following statements is true of proteins?  
 (1) They catalyse the biochemical reactions  
 (2) They act as antibodies  
 (3) They act as hormones  
 (4) They perform all these functions
38.  $\alpha$ -D-Glucose and  $\beta$ -D Glucose differ from each other due to difference in one of carbon with respect to its  
 (1) Size of hemiacetal ring  
 (2) Number of—OH groups  
 (3) Configuration  
 (4) Conformation

39. For  $\alpha$ -amino acid having the structure



Which of the following statements are true?

- (A) Water solubility is maximum at a pH when concentration of anions and cations are equal.  
 (B) They give ninhydrin test  
 (C) On reacting with nitrous acid give off  $\text{N}_2$
- (1) All                       (2) B and C  
 (3) A and B               (4) None of these
40. At the isoelectric point for an amino acid the species present are
- |   |   |
|---|---|
| (1) $\text{R}-\text{CH}-\text{COOH}$<br> <br>$\text{NH}_2$  | (2) $\text{R}-\text{CH}-\text{COOH}$<br> <br>$^+\text{NH}_3$  |
| (3) $\text{R}-\text{CH}-\text{COO}^-$<br> <br>$\text{NH}_2$ | (4) $\text{R}-\text{CH}-\text{COO}^-$<br> <br>$^+\text{NH}_3$ |

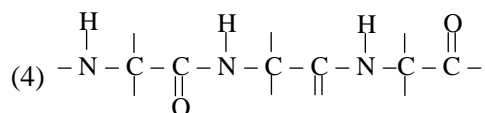
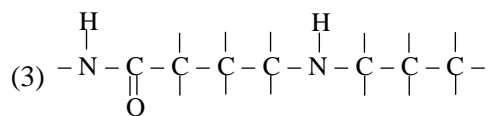
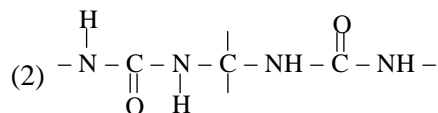
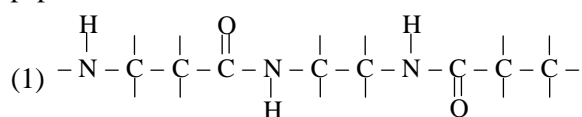
41. Secondary structure of a protein refers to  
 (1) Mainly denatured proteins and structures of prosthetic groups  
 (2) Regular folding patterns of contiguous portions of the polypeptide chain  
 (3) Linear sequence of amino acid residues in the polypeptide chain  
 (4) None of these
42. The iron in haemoglobin is bound by  
 (1) Hydrogen bonds       (2) Chelation  
 (3) Ionic bonds           (4) Covalent bonds

**CBSE – PMT**

1. The segment of DNA which acts as the instrumental manual for the synthesis of the protein is:  
 (1) nucleoside               (2) nucleotide  
 (3) ribose                   (4) gene
2. Which of the following hormones contains iodine?  
 (1) thyroxine               (2) insulin  
 (3) testosterone           (4) adrenaline
3. Which one of the following is an amine hormone?  
 (1) Thyroxine               (2) Oxypurin  
 (3) Insulin                   (4) Progesterone
4. In DNA the complimentary bases are  
 (1) Adenine and thymine; guanine and cytosine  
 (2) Adenine and thymine; guanine and uracil  
 (3) Adenine and guanine; thymine and cytosine  
 (4) Uracil and adenine; cytosine and guanine
5. RNA and DNA are chiral molecules, their chirality is due to  
 (1) Chiral bases  
 (2) Chiral phosphate ester unit  
 (3) D-sugar component  
 (4) L-sugar component
6. Which one of the following vitamins is water-soluble?  
 (1) Vitamin E               (2) Vitamin K  
 (3) Vitamin A               (4) Vitamin B
7. Which one of the following is a peptide hormone?  
 (1) Thyroxin               (2) Adrenaline  
 (3) Glucagon               (4) Testosterone
8. During the process of digestion, the proteins present in food materials are hydrolysed to amino acids. The [CBSE 2006]
- Proteins  $\xrightarrow{\text{Enzyme(A)}}$  Polypeptides  
 $\xrightarrow{\text{Enzyme(B)}}$  Amino acids, are respectively

- (1) Pepsin and Trypsin  
 (2) Invertase and Zymase  
 (3) Amylase and Maltase  
 (4) Diastase and Lipase
9. The human body does *not* produce  
 (1) Hormones (2) Enzymes  
 (3) DNA (4) Vitamins
10. Which functional group participates in disulphide bond formation in proteins?  
 (1) Thioether (2) Thiol  
 (3) Thioester (4) Thiolactone
11. The cell membranes are mainly composed of  
 (1) Phospholipids (2) Proteins  
 (3) Fats (4) Carbohydrates

12. Which one of the following structures represents the peptide chain ?

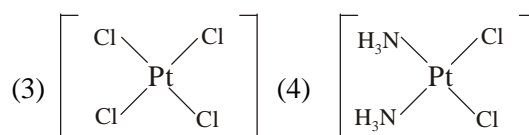
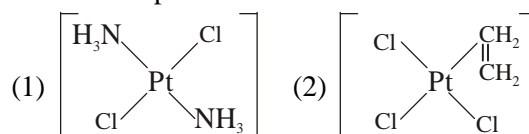


13. A sequence of how many nucleotides in messenger RNA makes a codon for an amino acid ?  
 (1) Two (2) Three  
 (3) Four (4) One
14. The hormone that helps in the conversion of glucose to glycogen is  
 (1) insulin (2) cortisone  
 (3) bile acids (4) adrenaline
15. The correct statement in respect of protein haemoglobin is that it  
 (1) forms antibodies and offers resistance to diseases  
 (2) functions as a catalyst for biological reactions  
 (3) maintains blood sugar level  
 (4) acts as an oxygen carrier in the blood

16. Number of chiral carbons in  $\beta$ -D-(+)-glucose is  
 (1) four (2) five  
 (3) six (4) three

17. The helical structure of protein is stabilized by  
 (1) peptide bonds (2) dipeptide bonds  
 (3) hydrogen bonds (4) ether bonds
18. The enzyme which hydrolyses triglycerides to fatty acids and glycerol is called  
 (1) pepsin (2) maltase  
 (3) lipase (4) zymase

19. Which of the following is considered to be an anticancer species ?



20. Which one of the following is employed as a Tranquilizer drug?  
 (1) Mifepristone (2) Promethazine  
 (3) Valium (4) Naproxen
21. Which one of the following does *not* exhibit the phenomenon of mutarotation?  
 (1) (-) Fructose (2) (+) Sucrose  
 (3) (+) Lactose (4) (+) Maltose
22. Fructose reduces Tollen's reagent due to  
 (1) asymmetric carbons  
 (2) primary alcoholic group  
 (3) secondary alcoholic group  
 (4) enolisation of fructose followed by conversion to aldehyde by base
23. Which **one** of the following statements is **not** true regarding (+) Lactose ?  
 (1) On hydrolysis (+) Lactose gives equal amount of D(+) glucose and D(+) galactose  
 (2) (+) Lactose is a  $\beta$ -glycoside formed by the union of a molecule of D(+) glucose and a molecule of D(+) galactose  
 (3) (+) Lactose is a reducing sugar and does not exhibit mutarotation  
 (4) (+) Lactose,  $\text{C}_{12}\text{H}_{22}\text{O}_{11}$  contains 8-OH groups



24. Which one of the following statement is **not** true ?
- (1) pH of drinking water should be between 5.5 – 9.5
  - (2) Concentration of DO below 6 ppm is good for the growth of fish
  - (3) Clean water would have a BOD value of less than 5 ppm
  - (4) Oxides of sulphur, nitrogen and carbon are the most widespread air pollutant

25. Which one of the following is employed as Antihistamine?

- (1) Chloramphenicol
- (2) Diphenyl hydramine
- (3) Norothindrone
- (4) Omeprazole

26. Which of the following is not a fat soluble vitamin?

- (1) Vitamin A
- (2) Vitamin B complex
- (3) Vitamin D
- (4) Vitamin E

27. Which of the statements about “Denaturation” given below are correct?

**Statements**

- (a) Denaturation of proteins causes loss of secondary and tertiary structures of the protein
- (b) Denaturation leads to the conversion of double strand of DNA into single strand
- (c) Denaturation affects primary structure which gets distorted

**Options**

- (1) (a), (b) and (c)
- (2) (b) and (c)
- (3) (a) and (c)
- (4) (a) and (b)

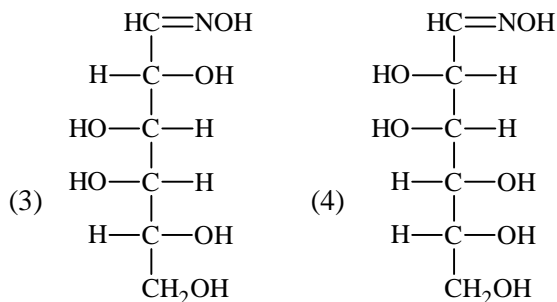
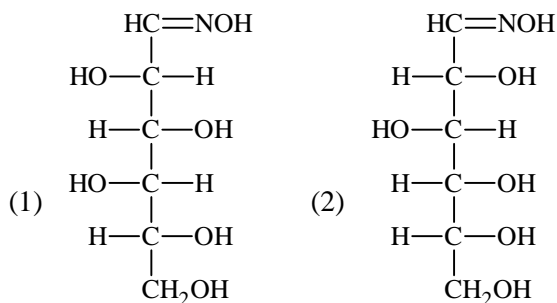
28. Which of the following hormones is produced under the condition of stress which stimulates glycogenolysis in the liver of human beings?

- (1) Adrenaline
- (2) Estradiol
- (3) Thyroxin
- (4) Insulin

29. Artificial sweetner which is stable under cold conditions only is

- (1) Aspartame
- (2) Alitame
- (3) Saccharine
- (4) Sucrose

30. D (+) glucose reacts with hydroxyl amine and yields an oxime. The structure of the oxime would be:



31. The function of “Sodium pump” is a biological process operating in each and every cell of all animals. Which of the following biologically important ions is also a constituent of this pump?

- (1)  $\text{K}^+$
- (2)  $\text{Fe}^{2+}$
- (3)  $\text{Ca}^{2+}$
- (4)  $\text{Mg}^{2+}$

32. Bithional is generally added to the soaps as an additive to function as a/an:

- (1) Buffering agent
- (2) Antiseptic
- (3) Softener
- (4) Dryer

**DPMT**

1. Which of the following statements is not true?

- (1) Pheromones are secreted outside the body by the insects
- (2) Aspirin is analgesic and anti pyretic
- (3) Sucrose is a dipeptide commonly known as aspartame
- (4) The DNA assists in the synthesis of RNA molecules

2. Which of the following statements is *not correct*?

- (1) Allergic conditions are cured by anti-histamines

- (2) Hormones are continuously produced but not stored in the body  
 (3) The function of the white blood cells is to protect the body against infections  
 (4) Catabolism involves degradation of molecules
3. An example for symbiotic bacteria:  
 (1) *Erwinia amylovora*  
 (2) *Rhizobium leguminosarum*  
 (3) *Xanthomonas campestris*  
 (4) *Agrobacterium tumefaciens*
4. Among the following which one is optically inactive amino acid?  
 (1) Alanine (2) Valine  
 (3) Glycine (4) Phenylalanine
5. Which one has different type of linkage between the two monosaccharides?  
 (1) Sucrose (2) Lactose  
 (3) Maltose (4) Amylose
6. Starch is converted to ethanol by fermentation the sequence of enzymes used are  
 (1) Amylase, maltase, zymase  
 (2) Diastase, maltase, zymase  
 (3) Amylase, invertase, zymase  
 (4) Amylase, zymase, maltase
7. Configuration of mannose and glucose differ at C-2 position they are termed as  
 (1) epimers (2) anomers  
 (3) racimers (4) mesomers
8. The secondary structure of proteins is derived from  
 (1) Peptide linkages (2) Hydrogen bonding  
 (3) Disulfide linkages (4) Folding of chains
9. Which of the following is not a biliquid propellant?  
 (1)  $N_2O_4$  + unsymmetrical dimethyl hydrazine  
 (2) Nitroglycerin + nitrocellulose  
 (3) Hydrazine +  $N_2O_4$   
 (4) Kerosene oil + liquid oxygen
10. The dyes which are used in reduced state and are then oxidized in the fabric by air are called  
 (1) Azo dyes (2) Dispersed dyes  
 (3) Basic dyes (4) Vat dyes
11. Which one of the following metal ions is essential inside the cell for the metabolism of glucose/synthesis of proteins?  
 (1)  $Ca^{2+}$  (2)  $Mg^{2+}$   
 (3)  $Na^+$  (4)  $K^+$
12. The anticodon of transfer RNA for the messenger RNA codon G-C-A is

- (1) T-G-A (2) G-U-T  
 (3) A-G-T (4) C-G-U
13. Which is not the correct statement about RNA and DNA?  
 (1) DNA is active in virus wher RNA never appears in virus  
 (2) DNA exists as dimer while RNA is usually single stranded  
 (3) DNA contains deoxyribose as its sugar and RNA contains ribose  
 (4) RNA contains uracil in place of thymine (found in DNA) as a base
14. What is the nature of glucose-glucose linkage in starch that makes it so susceptible to acid hydrolysis?  
 (1) Starch is hemiacetal  
 (2) Starch is acetal  
 (3) Starch is polymer  
 (4) Starch contains only few molecules of glucose

## AIIMS

1. Thymine is  
 (1) 5-Methyluracil (2) 4-Methyluracil  
 (3) 3-Methyluracil (4) 1-Methyluracil
2. Lysine is least soluble in water in the pH range  
 (1) 3 to 4 (2) 5 to 6  
 (3) 6 to 7 (4) 8 to 9
3. Methyl- $\alpha$ -D-glucoside and methyl- $\beta$ -D-glucoside are  
 (1) Epimers  
 (2) Anomers  
 (3) Enantiomers  
 (4) Conformational diastereomers
4. Which one of the following biomolecules is insoluble in water?  
 (1)  $\alpha$ -Keratin (2) Haemoglobin  
 (3) Ribonuclease (4) Adenine
5. Which one of the following statements is true for protein synthesis (translation)?  
 (1) Amino acids are directly recognized by *m*-RNA.  
 (2) The third base of the codon is less specific.  
 (3) Only one codon codes for an amino acid.  
 (4) Every *t*-RNA molecule has more than one amino acid attachment site.
6. Which of the following chemicals are used to manufacture methyl isocyanate that caused "Bhopal Tragedy"  
 (i) methylamine (ii) phosgene  
 (iii) phosphine (iv) dimethylamine  
 (1) (i) and (iii) (2) (iii) and (iv)  
 (3) (i) and (ii) (4) (ii) and (iv)

## Biomolecules

Each of the questions given below consists of two statements, an assertion (A) and reason (R). Select the number corresponding to the appropriate alternative as follows

- (1) If both A and R are true and R is the correct explanation of A, then mark 1
  - (2) If both A and R are true but R is not the correct explanation of A, then mark 2
  - (3) If A is true but R is false, then mark 3
  - (4) If both A and R are false, then mark 4
- 
1. A. The enzyme amylase hydrolyses starch to maltose.  
R. Starch is polymer containing glycosidic linkages.
  2. A. During emergency, hormone adrenaline stimulates the conversion of liver glycogen into glucose.  
R. Adrenaline is an example of peptide hormone.
  3. A. Fructose is a monosaccharide which contains ketone functional group but still gives a silver mirror with Tollen's reagent.  
R. In basic conditions, fructose undergoes rearrangement reaction to form glucose and mannose.
  4. A. Starch is a polymer of  $\alpha$ -D-glucose.  
R. Starch sol. is an example of lyophilic sol.
  5. A. Glycosides are hydrolysed in acidic conditions.  
R. Glycosides are acetals.
  6. A. A solution of sucrose in water is dextrorotatory but on hydrolysis in the presence of small amount of dil. HCl, it becomes laevorotatory.  
R. Sucrose on hydrolysis gives unequal amounts of glucose and fructose as a result of which change in sign of rotation is observed.
  7. A. Each turn of the  $\alpha$ -helix structure of protein forms a 13 membered ring is containing 3.6 amino acids.  
R.  $\alpha$ -helix is secondary structure of protein which gets stabilised via hydrogen bonding and disulphide linkages.
  8. A. Vitamin-E is called Tocopherol.  
R. The deficiency of vitamin-E causes sterility.
  9. A. In any sample of DNA, number of GC pairs equals to AT pairs.  
R. Adenine pair up with thymine via two hydrogen bonds and guanine pair up with cytosine via three hydrogen bonds.
  10. A. Phospholipids are good emulsifying agents.  
R. Lipids having polar head and non-polar tail are emulsifying agents.
  11. A.  $\alpha$ -glucose and  $\beta$ -glucose are the anomers of glucose having different specific optical rotation.  
R. Glucose and fructose both are monosaccharides.
  12. A. Aspirin is 2-acetoxy benzoic acid.  
R. Aspirin is obtained by acetylation of salicylic acid.
  13. A. Equanil, veronal and luminal are all examples of tranquilisers.  
R. Tranquilisers are psychotherapeutic drugs.
  14. A. Aspirin causes bleeding and ulcer formation in the empty stomach.  
R. The ester group in aspirin gets hydrolysed by HCl in the stomach to form an acid which is nearly 18 times stronger than phenol.
  15. A. Dettol is a mixture of terpineol and chloroxylenol.  
R. Paracetamol is an example of broad spectrum antibiotic.
  16. A. Tetracycline is an example of bacteriostatic.  
R. It inhibits the growth of organisms.
  17. A. The colour imparted by azo dyes is not very fast.  
R. Methyl orange is an example of azo dye.
  18. A. Aspartame is a protein used as an artificial sweetener.  
R. It has a very high heat of combustion per gram.
  19. A. The large part in cationic detergents is positively charged.  
R. Cationic detergents are used as germicides.
  20. A. The colour bearing group in the dye is called chromophore.  
R. The vat dyes are applied to the fabric in the presence of metal ions.

# ANSWERS TO ASSIGNMENT

## CHEMISTRY- II (MEDICAL)

### POLYMERS

- |            |         |         |        |         |
|------------|---------|---------|--------|---------|
| 1. (2,3,4) | 2. (2)  | 3. (3)  | 4. (4) | 5. (1)  |
| 6. (2)     | 7. (3)  | 8. (4)  | 9. (1) | 10. (1) |
| 11. (3)    | 12. (1) | 13. (1) |        |         |

### CBSE – PMT

- |         |        |        |        |         |
|---------|--------|--------|--------|---------|
| 1. (1)  | 2. (2) | 3. (4) | 4. (3) | 5. (4)  |
| 6. (4)  | 7. (1) | 8. (1) | 9. (1) | 10. (2) |
| 11. (3) |        |        |        |         |

### DPMT

- |        |        |        |        |        |
|--------|--------|--------|--------|--------|
| 1. (2) | 2. (2) | 3. (1) | 4. (1) | 5. (4) |
|--------|--------|--------|--------|--------|

### BIOMOLECULES, BIOLOGICAL PROCESSES, CHEMISTRY IN ACTION

- |             |         |         |         |         |
|-------------|---------|---------|---------|---------|
| 1. (4)      | 2. (3)  | 3. (4)  | 4. (1)  | 5. (4)  |
| 6. (3)      | 7. (4)  | 8. (4)  | 9. (4)  | 10. (3) |
| 11. (3)     | 12. (4) | 13. (1) | 14. (1) | 15. (4) |
| 16. (2,3,4) | 17. (3) | 18. (2) | 19. (3) | 20. (1) |
| 21. (3)     | 22. (4) | 23. (3) | 24. (3) | 25. (4) |
| 26. (3)     | 27. (1) | 28. (3) | 29. (4) | 30. (2) |
| 31. (2)     | 32. (4) | 33. (2) | 34. (2) | 35. (3) |
| 36. (1)     | 37. (4) | 38. (3) | 39. (2) | 40. (4) |
| 41. (3)     | 42. (2) |         |         |         |

### CBSE

- |         |         |         |         |         |
|---------|---------|---------|---------|---------|
| 1. (4)  | 2. (1)  | 3. (1)  | 4. (1)  | 5. (3)  |
| 6. (4)  | 7. (3)  | 8. (1)  | 9. (4)  | 10. (2) |
| 11. (1) | 12. (4) | 13. (2) | 14. (1) | 15. (4) |
| 16. (2) | 17. (3) | 18. (3) | 19. (4) | 20. (3) |
| 21. (2) | 22. (4) | 23. (3) | 24. (2) | 25. (2) |
| 26. (2) | 27. (4) | 28. (1) | 29. (1) | 30. (2) |
| 31. (1) | 32. (2) |         |         |         |

## DPMT

- |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1.  | (3) | 2.  | (2) | 3.  | (2) | 4.  | (3) | 5.  | (3) |
| 6.  | (3) | 7.  | (1) | 8.  | (2) | 9.  | (2) | 10. | (4) |
| 11. | (2) | 12. | (4) | 13. | (1) | 14. | (2) |     |     |

## AIIMS

- |    |     |    |     |    |     |    |     |    |     |
|----|-----|----|-----|----|-----|----|-----|----|-----|
| 1. | (1) | 2. | (3) | 3. | (2) | 4. | (1) | 5. | (2) |
| 6. | (3) |    |     |    |     |    |     |    |     |

## ASSERTION-REASON TYPE QUESTIONS (FOR AIIMS) BIOMOLECULES, BIOLOGICAL PROCESSES, CHEMISTRY IN ACTION

- |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1.  | (1) | 2.  | (3) | 3.  | (1) | 4.  | (2) | 5.  | (1) |
| 6.  | (3) | 7.  | (1) | 8.  | (2) | 9.  | (2) | 10. | (1) |
| 11. | (2) | 12. | (1) | 13. | (2) | 14. | (1) | 15. | (3) |
| 16. | (1) | 17. | (2) | 18. | (3) | 19. | (2) | 20. | (3) |