# Exercise-1

✍ **Marked Questions are for Revision Questions.**

## ONLY ONE OPTION CORRECT TYPE

### SECTION - A # NUCLEIC ACIDS

**1.** DNA differs from RNA
(1) In the nature of sugar alone (2) In the nature of purines alone
(3) In the nature of sugar and pyrimidines (4) None of the above

**2.** ATP is
(1) Adenosine D-ribose three phosphate (2) Adenosine L-ribose three phosphate
(3) Adenine D-ribose three phosphate (4) Adenine L-ribose three phosphate

**3.** Thymine is a
(1) Enzyme (2) Vitamin (3) Pyrimidine (4) Purine

**4.** RNA contains
(1 Hexose sugar (2) Deoxyribose sugar (3) Dextrose sugar (4) Ribose sugar

**5.** In DNA guanine pairs with
(1) Cytosine (2) Thymine (3) Uracil (4) Adenine

**6.** DNA strands are antiparallel because of the presence of
(1) H-bonds (2) Peptide bonds (3) Disulfide bonds (4) Phosphate-diester bonds

**7.** The base pairs of DNA are correctly shown as
(1) A ≡ T and C = G (2) A = T and C = G (3) A = T and C ≡ G (4) A ≡ T and C ≡ G

**8.** Purines are
(1) Single ring compounds (2) Double ring compounds
(3) Straight chain compounds (4) None of the above

**9.** Which of the following is capable of self replication?
(1) An enzyme (2) A carbohydrate molecule
(3) A water molecule (4) A nucleic acid

**10.** A nucleoside differs from a nucleotide in not having
(1) Phosphate (2) Sugar
(3) Phosphate and sugar (4) Nitrogen base

### SECTION - B # ENZYMES

**1.** All enzymes contain -
(1) Sugars (2) Proteins (3) Fats (4) Vitamins

**2.** Enzyme are best defined as
(1) Catalysts (2) Bio–catalysts (3) Inorganic–catalysts (4) Metallo–catalysts

**3.** Biological catalysts are called

(1) Auxins (2) Gibberellins (3) Enzymes (4) All the above

**4.** Enzymes are the polymers of
(1) 6- carbon (2) Fatty acids (3) Amino acids (4) Inorganic phosphate

**5.** Which one of the following enzyme is not composed of simple proteins?
(1) Amylase (2) Pepsin (3) Urease (4) Ribozyme

**6.** The enzyme used for alcohol formation by fermentation is
(1) Invertase (2) Lipase (3) Amylase (4) Zymase

**7.** The catalytic efficiency of two different enzymes can be compared by the
(1) Formation of the product (2) The pH of optimum value
(3) The Km value (4) Molecular size of the enzyme

**8.** Which one of the following is an enzyme?
(1) Insulin (2) Riboflavin (3) Griseofulvin (4) Lipase

**9.** An enzyme can be synthesised by chemically bonding together molecules of
(1) Carbohydrates (2) Amino acids (3) Lipases (4) $CO_2$

**10.** A dialysable non-protein organic substance which combines with apoenzyme to make a functional enzyme is
(1) Hormone (2) Coenzyme (3) Proenzyme (4) Holoenzyme

**11.** Enzyme complex is called
(1) Holoenzyme (2) Apoenzyme (3) Coenzyme (4) Prosthetic group

**12.** When coenzyme is combined with apoenzyme, it is called
(1) Cofactor (2) Holoenzyme
(3) Substrate enzyme complex (4) Vitamin A

**13.** Non-protein part of an enzyme is known as
(1) Holoenzyme (2) Apoenzyme (3) Co-fector (4) All the above

**14.** The enzyme, which combines with non-protein part to form a functional enzyme known as
(1) Co-enzyme (2) Holoenzyme (3) Apoenzyme (4) Prosthetic group

**15.** Systematic approach of naming enzymes has been recommended by the Commission on Enzymes of the
(1) International Union of Physiology (2) International Union of Biochemistry
(3) International Union of Biotechnology (4) International Union of Genetic Engineering

**16.** Basically how many types of enzymes have been recognised by International Union of Biochemistry?
(1) 4 (2) 5 (3) 6 (4) 8

**17.** In the modern system of nomenclature which one of the following enzyme occupies $1^{st}$ position?
(1) Oxidoreductase (2) Transferase (3) Hydrolase (4) Ligase

**18.** Enzyme which hydrolyses starch to maltose is
(1) Lactase (2) Protease (3) Maltase (4) Amylase

**19.** Which one is not an example for hydrolases?
(1) Dehydrogenase (2) Protease (3 Amylase (4) Esterase

**20.** In the cell digestive enzymes are mostly in
(1) Lysosome (2) Cell wall (3) Ribosome (4) Chromosomes

**21.** Enzyme concerned with transfer of electrons are
(1) Hydrolase (2) Dehydrogenase (3) Transaminase (4) Desmolase

**22.** Esterase enzyme belongs to which of the following class
(1) Oxidoreductase (2) Carboxylase (3) Hydrolases (4) Transferases

**23.** Which one belongs to hydrolase group?
(1) Amylase (2) Transaminase (3) Citrate synthetase (4) Enolase

**24.** The strand turns at which angle in each step of ascent of DNA?
(1) 360° (2) 3.6° (3) 36° (4) None of these

## MISCELLANEOUS QUESTIONS

**1.** Which sugar is present in nucleic acid-
(1) Pentose (2) Hexose (3) Fructose (4) Glucose

**2.** The two polynucleotide chains in DNA are
(1) Discontinuous (2) Antiparallel (3) Semiconservative (4) Parallel

**3.** The number of hydrogen bonds between adenine and thymine in a DNA molecule is
(1) Two (2) Three (3) Four (4) Eight

**4.** DNA multiplication is called
(1) Translation (2) Replication (3) Transduction (4) Transcription

# Exercise-2

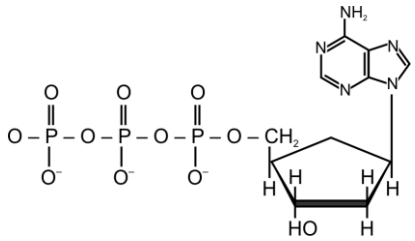
**1.** The statement "All biological catalysts are proteins" is no more valid because of the discovery of **(FIBNO)**
(1) ribonuclease (2) ribozymes (3) lysozymes (4) enzymes

**2.** A unit composed of sugar and nitrogen base linked by glycosidic bond is **(2nd NSO II L)**
(1) purine (2) glycoside (3) nucleoside (4) nucleotide

**3.** Co-enzyme A, which combines with the acetyl group, is formed in part from **(4th NSO II L)**
(1) Zinc (2) Iron
(3) Vitamin A (4) One of the vitamin B

**4.** Water solubility of the DNA molecule is due to **(4nd NSEB)**
(1) Deoxy-sugars (2) N-containing base
(3) phosphate groups (4) all of these

**5.#** The chemical structure shown in the figure is **(1st CBO)**



(1) a triphosphopeptide
(2) a ribose sugar
(3) deoxyadenosine triphosphate
(4) the nitrogenous base, adenine

# Exercise-3

## PART - I NEET / AIPMT QUESTION (PREVIOUS YEARS)

**1.** Length of one turn of the helix in a B-form DNA is approximately **(AIPMT-2000)**
(1) 3.4 nm (2) 2 nm (3) 0.34 nm (4) 20 nm

**2.** One of the similarities between DNA and RNA is that both **(AIPMT-2000)**
(1) are polymers of nucleotides (2) are capable of replicating
(3) have similar sugars (4) have similar pyrimidine bases

**3.** ATP is a **(AIPMT-2000)**
(1) nucleotide (2) nucleosome (3) nucleoside (4) purine

**4.^** Enzymes enhance the rate of reaction by **(AIPMT-2000)**
(1) forming a reactant-product complex
(2) changing the equilibrium point of the reaction
(3) combining with the product as soon as it is formed
(4) lowering the activation energy of the reaction

**5.** Feedback inhibition of an enzymatic reaction is caused by **(AIPMT-2000)**
(1) end product (2) substrate (3) enzyme (4) rise in temperature

**6.** Cytochrome is **(AIPMT-2001)**
(1) Metallo flavoprotein (2) Fe containing porphyrin pigment
(3) Glycoprotein (4) Lipid

**7.** Hydrolytic enzymes which act at low pH are called as **(AIPMT-2002)**
(1) proteases (2) $\alpha$-amylases
(3) hydrolases (4) peroxidases

**8.** Nucleotides are building blocks of nucleic acids. Each nucleotide is a composite molecule formed by
(1) base-sugar-phosphate (2) base-sugar-OH **(AIPMT-2005)**
(3) $(\text{base-sugar-phosphate})_n$ (4) sugar-phosphate

**9.** Which of the following statements regarding enzyme inhibition is correct? **(AIPMT-2005)**

(1) Competitive inhibition is seen when a substrate competes with an enzyme for binding to an inhibitor protein

(2) Competitive inhibition is seen when the substrate and the inhibitor compete for the active site on the enzyme

(3) Non-competitive inhibition of an enzyme can be overcome by adding large amount of substrate

(4) Non-competitive inhibitors often bind to the enzyme irreversibly

**10.** Enzymes, vitamins and hormones can be classified into a single category of biological chemicals, because all of these **(AIPMT-2005)**

(1) help in regulating metabolism

(2) are exclusively synthesized in the body of a living organism

(3) are conjugated proteins

(4) enhance oxidative metabolism

**11.** The catalytic efficiency of two different enzymes can be compared by the **(AIPMT-2005)**

(1) formation of the product (2) pH optimum value

(3) Km value (4) molecular size of the enzyme

**12.** Telomerase is an enzyme which is a **(AIPMT-2005)**

(1) repetitive DNA (2) RNA (3) simple protein (4) ribonucleoprotein

**13.** An organic substance bound to an enzyme and essential for its activity is called **(AIPMT-2006)**

(1) holoenzyme (2) apoenzyme (3) isoenzyme (4) coenzyme

**14.** Antiparallel strands of a DNA molecule means that **(AIPMT-2006)**

(1) the phosphate groups of two DNA strands, at their ends, share the same position

(2) the phosphate groups at the start of two DNA strands are in opposite position (pole)

(3) one strand turns clockwise

(4) one strands turns anti-clockwise

**15.** One turn of the helix in a B-form DNA is approximately **(AIPMT-2006)**

(1) 0.34 nm (2) 3.4 nm (3) 2 nm (4) 20 nm

**16.** The two polynucleotide chains in DNA are **(AIPMT-2007)**

(1) parallel (2) discontinuous (3) antiparallel (4) semiconservative

**17.** A competitive inhibitor of succinate in succinic dehydrogenase is **(AIPMT-2008)**

(1) malonate (2) oxaloacetate (3) $\alpha$-ketoglutarate (4) malate

**18.** In the DNA molecule **(AIPMT-2008)**

(1) the total amount of purine nucleotides and pyrimidine nucleotides is not always equal

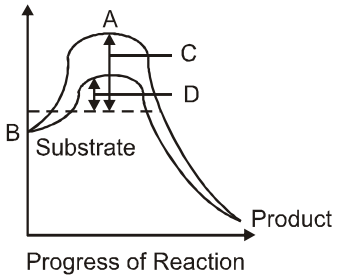
(2) there are two strands which run parallel in the 5' $\rightarrow$ 3' direction

(3) the proportion of adenine in relation to thymine varies with the organism

(4) there are two strands which run antiparallel-one in 5' $\rightarrow$ 3' direction and other in 3' $\rightarrow$ 5'

**19.#** The figure given below shows the conversion of a substrate into product by an enzyme. In which one of the four option (1-4) the components of reaction labelled as A, B, C and D are identitied correctly.

**(AIPMT Mains 2010)**




| | A | B | C | D |
|---|---|---|---|---|
| (1) | Activation energy with enzyme | Transition state | Activation energy without enzyme | Potential Energy |
| (2) | Potential energy | Transition state | Activation energy with enzyme | Activation energy with enzyme |
| (3) | Transition state | Potential energy | Activation energy without enzyme | Activation energy with enzyme |
| (4) | Potential enegy | Transition state | Activation energy with enzyme | Activation energy without enzyme |

**20.** Three of the following statements about enzymes are correct and one is wrong, which one is wrong

(1) Most enzymes are proteins but some are lipids **(AIPMT Mains 2010)**

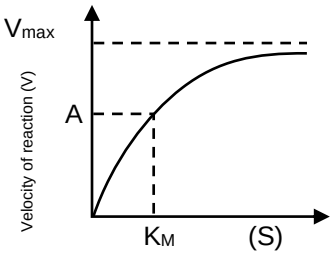
(2) Enzymes require optimum pH for maximal activity

(3) Enzymes are denatured at high temperatures but in certain exceptional organisms they are effective even at temperatures 80°- 90°C

(4) Enzymes are highly specific

**21.#** In curve of enzyme catalyzed reaction, the value of velocity of enzyme reaction at point A will be

**(AIPMT Mains 2010)**




(1) $\frac{1}{2}V_{max}$ and velocity may increase by increasing tempreture

(2) $\frac{1}{2}V_{max}$ and velocity may increase by increasing substrate

(3) $\frac{1}{2}V_{max}$ and velocity may increase by increasing by catalyst

(4) $\frac{1}{2}V_{max}$ and velocity remain constant even changing any factor in to the medium.

**22.** Which one of the following enzymes carries out the initial step in the digestion of milk in humans?

**(AIPMT Pre 2011)**

(1) Pepsin (2) Rennin (3) Lipase (4) Trypsin

**23.** Which of the following is the best evidence for the 'Lock- and-key model' of enzyme action?

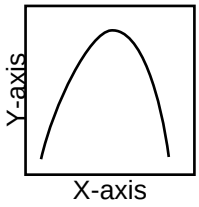
(1) all isolated enzymes have been identified as proteins **(AIPMT-2011)**

(2) compounds similar in structure to the substrate inhibit the reaction

(3) enzymes are found in living organisms and speed up certain reactions

(4) enzymes determine the direction of reaction

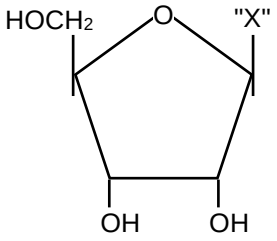
**24.#** The curve given below shows enzymatic activity with relation to three conditions pH, temperature and substrate concentration. **(AIPMT Pre 2011)**




What do the two axises (x and y) represent?

| | **X – axis** | **Y-axis** |
|---|---|---|
| (1) | Enzymatic activity | pH |
| (2) | Temperature | enzyme activity |
| (3) | Substrate concentration, | enzymatic activity |
| (4 | Enzymatic activity | temperature |

**25.#** Given below is the diagrammatic representation of one of the categories of small molecular weight organic compounds in the living tissues. Identify the **category** shown and the one blank component "X" in it. **[AIPMT Pre 2012]**




| | **Category** | **Component** |
|---|---|---|
| (1) | Cholesterol | Guanine |
| (2) | Amino acid | $NH_2$ |
| (3) | Nucleotide | Adenine |
| (4) | Nucleoside | Uracil |

**26.** Select the option which is not correct with respect to enzyme action: **(AIPMT 2014)**

(1) Substrate binds with enzyme at its active site.

(2) Addition of lot of succinate does not reverse the inhibition of succinic dehydrogenase by malonate

(3) A non- competitive inhibitor binds the enzyme at a site distinct from that which binds the substrate

(4) Malonate is a competitive inhibitor of succinic dehydrogenase

**27.** DNA is **not** present in **(AIPMT-2015)**

(1) Ribosomes (2) Nucleus (3) Mitochondria (4) Chloroplast

**28.** Which one of the following statements is incorrect? **(AIPMT 2015)**

(1) In competitive inhibition, the inhibitor molecule is not chemically changed by the enzyme.

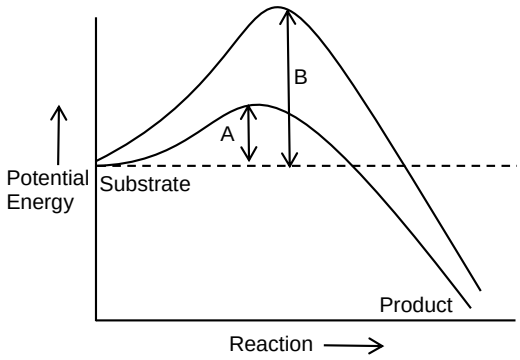
(2) The competitive inhibitor does not affect the rate of breakdown of the enzyme-substrate complex.
(3) The presence of the competitive inhibitor decreases the Km of the enzyme for the substrate.
(4) A competitive inhibitor reacts reversibly with /the enzyme to form an enzyme-inhibitor complex.

**29.** In sea urchin DNA, which is double stranded, 17% of the bases were shown to be cytosine. The percentages of the other three bases expected to be present in this DNA are : **(AIPMT 2015)**
(1) G 17%, A 16.5%,T32.5%
(2) G 17%, A 33%,T 33%
(3) G8.5%,A50%, T24.5%
(4) G 34%,A 24.5%,T 24.5%

**30.** Which one of the following is not applicable to RNA? **(AIPMT 2015)**
(1) 5' phosphoryl and 3' hydroxyl ends (2) Heterocyclic nitrogenous bases
(3) Chargaff's rule (4) Complementary base pairing

**31.** Which of the following biomolecules does have phosphodiester bond ? **(AIPMT 2015)**
(1) Monosaccharides in a polysaccharide (2) Amino acids in a polypeptide
(3) Nucleotides in a Nucleic acid (4) Fatty acids in a diglyceride

**32.** Which of the following describes the given graph correctly? **(NEET-2-2016)**




(1) Exothermic reaction with energy A in absence of enzyme and B in presence of enzyme
(2) Endothermic reaction with energy A in presence of enzyme and B in absence of enzyme
(3) Exothermic reaction with energy A in presence of enzyme and B in absence of enzyme
(4) Endothermic reaction with energy A in absence of enzyme and B in presence of enzyme.

**33.** Which one of the following statements is correct with reference to enzymes? **(NEET-2017)**
(1) Apoenzyme = Holoenzyme + Coenzyme (2) Holoenzyme = Apoenzyme + Coenzyme
(3) Coenzyme = Apoenzyme + Holoenzyme (4) Holoenzyme = Coenzyme + Co-factor

**34.** Which of the following are not polymeric ? **(NEET-2017)**
(1) nucleic acids (2) proteins (3) polysaccharides (4) Lipids

**35.** Consider the following statements: **(NEET-1-2019)**
(A) Coenzyme or metal ion that is tightly bound to enzyme protein is called prosthetic group,
(B) A complete catalytic active cnzyme with its bound prosthetic group is called apoenzyme.
Select the correct option.
(1) (A) is false but (B) is true (2) Both (A) and (B) are true

(3) (A) is true but (B) is false (4) Both (A) and (B) are false

**36.** Purines found both in DNA and RNA are **(NEET-1-2019)**

(1) Cytosine and thymine (2) Adenine and thymine

(3) Adenine and guanine (4) Guanine and cytosine

**37.** Prosthetic groups differ from co-enzymes in that, **(NEET-2-2019)**

(1) they require metal ions for their activity.

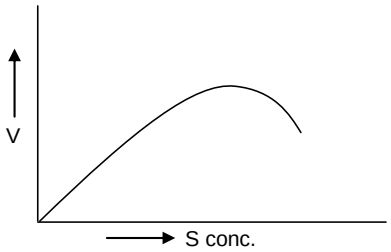
(2) they (prosthetic groups) are tightly bound to apoenzymes.

(3) their association with apoenzymes is transient.

(4) they can serve as co-factors in a number of enzyme-catalyzed reactions.

## PART - II AIIMS QUESTION (PREVIOUS YEARS)

**1.** The given graph shows the effect of substrate concentration on the rate of reaction of the enzyme green-gram-phosphatase **(AIIMS-2005)**




What does the graph indicate?

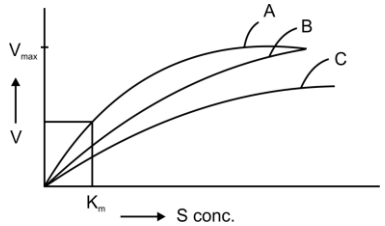
(1) The rate of enzyme reaction is directly proportional to the substrate concentration

(2) Presence of an enzyme inhibitor in the reaction mixture

(3) Formation of an enzyme-substrate complex

(4) at higher substrate concentration the pH increases

**2.** The figure given below shows three velocity substrate concentration curves for an enzyme reaction, What do the curves a, b, and c depict respectively? **(AIIMS-2006)**




(1) a-normal enzyme reaction, b-competitive inhibition, c-non-competitive inhibition,

(2) a-enzyme with an allosteric modulator added, b-normal enzyme activity, c-competitive inhibition

(3) a-enzyme with an allosteric stimulator, b-competitive inhibitior added, c-normal enzyme reaction

(4) a-normal enzyme reaction, b-non-competitive inhibitor added, c-allosteric inhibitor added

**3.** An example of competitive inhibition of an enzyme is the inhibition of **(AIIMS-2007)**

(1) succinic dehydrogenase by malonic acid

(2) cytochrome oxidase by cyanide

(3) hexokinase by glucose-6-phosphate

(4) carbonic anhydrase by carbon dioxide.

**4.** Enzymes, vitamins and hormones can be classified into a single category of biological chemicals because of all of these **(AIIMS-2008)**

(1) enhance oxidative metabolism

(2) are conjugated proteins

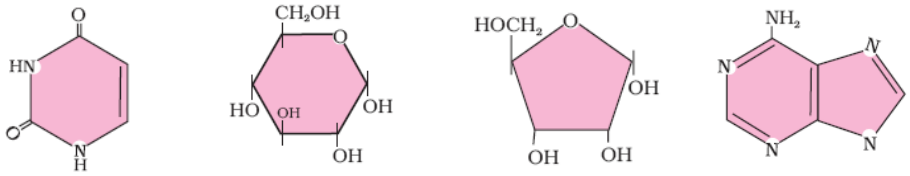
(3) are exclusively synthesised in the body of a living organism as at present

(4) help in regulating metabolism.

**5.** If T = 40%, C = 10% then G =? in a pollen cell **(AIIMS-2011)**

(1) 40% (2) 10% (3) 91% (4) 20%

**6.** Select the option having correct matching of structure and sequence of the molecules given below – **(AIIMS-III-2018)**




**A** **B** **C** **D**

(1) A - Uracil, B - Glucose, C - Ribose, D - Adenine

(2) A - Adenine, B - Glucose, C - Uracil, D - Ribose

(3) A - Uracil, B - Ribose, C - Glucose, D - Adenine

(4) A - Adenine, B - Uracil, C - Ribose, D - Glucose

# Answers

## EXERCISE - 1

### SECTION - A

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

### SECTION - B

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1.** | (2) | **2.** | (2) | **3.** | (3) | **4.** | (3) | **5.** | (4) | **6.** | (4) | **7.** | (3) |
| **8.** | (4) | **9.** | (2) | **10.** | (2) | **11.** | (1) | **12.** | (2) | **13.** | (3) | **14.** | (3) |
| **15.** | (2) | **16.** | (3) | **17.** | (1) | **18.** | (4) | **19.** | (1) | **20.** | (1) | **21.** | (2) |
| **22.** | (3) | **23.** | (1) | **24.** | (3) | | | | | | | | |

## Miscellaneous Questions

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

## EXERCISE - 2

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

## EXERCISE - 3

### PART- I

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

### PART- II

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

## Self Practice Paper (SPP)

**1.** Which of the following compound is most abundantly found in a cell?
(1) Protein (2) Lipid (3) Carbohydrate (4) Water

**2.** Honey contains the hydrolytic product of-
(1) Lactose (2) Maltose (3) Insulin (4) Cellulose

**3.** Which is odd, among the following?
(1) Chitin-Carbohydrate (2) Pectin-protein
(3) Steroid-lipid (4) Wax-lipid

**4.** In human being, galactose is most easily available-
(1) By the conversion of glucose (2) By the conversion of fructose
(3) By the hydrolysis of maltose (4) By the hydrolysis of milk

**5.** Which of the following is not a mucopolysaccharide-
(1) Heparin (2) Chondroitin sulphate
(3) Hyaluronic acid (4) Inulin

**6.** The normal blood glucose level of an adult in the post absorptive state is-
(1) 40-60 mg/100 ml (2) 80-100 mg/100 ml
(3) 120-130 mg/100 ml (4) 160-180 mg/100 ml

**7.** Which one is not a protein?
(1) Cytochrome (2) Myoglobin (3) Fibrinogen (4) urea

**8.** Histones are-
(1) Nucleic acids (2) Nitrogen bases of DNA
(3) Proteins of eukaryotes (4) Proteins of prokaryotes

**9.** Carbohydrate metabolism is controlled by
(1) Paratharmone (2) Insulin (3) Glucose (4) Vitamin $B_{12}$

**10.** Growth, repair and protection against diseases in our body is carried by-
(1) Vitamins (2) Hormones (3) Proteins (4) Lipids

**11.** The process of protein synthesis is also called-
(1) Translation (2) Tranduction
(3) Translation & tranduction (4) Transcription - Translation

**12.** Amino acids have net charge zero at-
(1) Every pH (2) No pH (3) A specific pH (4) None of these

**13.** In many proteins, the hydrogen bonding produces a regular coiled arrangment called-
(1) $\alpha$-helix (2) $\beta$-helix (3) both (4) None

**14.** Which of the following group contain acid soluble compound?

(1) Polysaccharide, glucose (2) Glucose, protein
(3) Sulphate (4) All of the above

**15.** In amino acid, the name of groups present on all four valency of $\alpha$-carbon are
(1) hydrogen, carboxyl, amino and R-group (2) hydrogen, alcoholic, amino and R-group
(3) hydrogen, alcoholic, carboxyl and R-group (4) None of the above

**16.** The unwanted amino acid abstracted from the tissues are either used up by the tissue or in the liver converted into-
(1) Ammonia (2) Urea (3) Ammonium salts (4) Uric acid

**17.** The similarity between DNA and RNA is that both are
(1) Double stranded (2) Having similar sugars
(*3) Polymers of nucleotides (4) Having similar pyrimidines

**18.** Which of the cell organelles are devoid of deoxy ribonucleic acid
(1) Mitochondria and nucleus (2) Chloroplast and mitochondria
(3) Nucleus and chloroplast (4) Lysosome and dictyosome

**19.** During anaerobic digestion of organic waste, such as in producing biogas, which one of the following is left undergraded
(1) Hemicellulose (2) Lipids (3) Cellulose (4) Lignin

**20.** RNA is absent in
(1) Plasmalemma (2) Cytoplasm (3) Chromosomes (4) Ribosomes

**21.** Which of the following is the simplest amino acid?
(1) Alanine (2) Asparagine (3) Glycine (4) Tyrosine

**22.** Enzymes enhance the rate of reaction by
(1) forming a reactant-product complex
(2) changing the equilibrium point of the reaction
(3) combining with the product as soon as it is formed
(4) lowering the activation energy of the reaction

**23.** Antibodies in our body are complex
(1) Steroids (2) prostaglandins (3) Glycoproteins (4) Lipoproteins

**24.** Which is odd, among the following?
(1) Adenosine – Adenylic acid
(2) Thymidine – Thymidylic acid
(3) Guanine – Guanylic acid
(4) Cytidine – Cytidylic acid

**25.** Select the option which is not correct with respect to enzyme action:
(1) Substrate binds with enzyme at its active site.
(2) Addition of lot of succinate does not reverse the inhibition of succinic dehydrogenase by malonate
(3) A non- competitive inhibitor binds the enzyme at a site distinct from that which binds the substrate
(4) Malonate is a competitive inhibitor of succinic dehydrogenase

**26.** Enzyme inhibitor which resemble to the structure of substrate, that is:
(1) Allosteric inhibitor (2) Competitive inhibitor
(3) Non competitive inhibitor (4) All of the above

**27.** At the time of cotton seeds germination, the stored food is digested by
(1) Diastase (2) Maltase (3) Lipase (4) Amylase

**28.** In the DNA molecule
(1) the total amount of purine nucleotides and pyrimidine nucleotides is not always equal
(2) there are two strands which run parallel in the 5' $\rightarrow$ 3' direction
(3) the proportion of adenine in relation to thymine varies with the organism
(4) there are two strands which run antiparallel-one in 5' $\rightarrow$ 3' direction and other in 3' $\rightarrow$ 5'

**29.** Substrate of amylase enzyme is
(1) Protein (2) Fat (3) Starch (4) Sucrose

**30.** Most enzymes consist of two parts; these are
(1) Enzyme and substrate (2) Enzyme and coenzyme
(3) Apoenzyme and enzyme (4) Apoenzyme and prosthetic group

**31.** Enzyme which catalyze transfer of group, other than hydrogen.
(1) Dehydrogenase (2) Lyases (3) Transferase (4) Isomerase

**32.** Biosynthetic pathway in which energy is consumed and degradative pathway in which energy is released, respectively known as
(1) Catabolic pathway and anabolic pathway
(2) Anabolic pathway and catabolic pathway
(3) Both (1) & (2)
(4) Catabolic pathway

**33.** Which one of the following is a non-reducing carbohydrate?
(1) Maltose (2) Sucrose
(3) Lactose (4) Ribose 5-phosphate

**34.** Enzymes catalysing the linking together of two compounds, these are
(1) Lyases (2) Isomerase (3) Hydrolases (4) Ligases

**35.** The enzyme responsible for atmospheric nitrogen fixation is
(1) Nitrogenase (2) Hydrogenase (3) Oxygenase (4) Carboxylase

**36.** About 98 percent of the mass of every living organism is composed of just six elements including carbon, hydrogen, nitrogen, oxygen and
(1) phosphorus and sulphur (2) sulphur and magnesium
(3) magnesium and sodium (4) calcium and phosphorus

**37.** Enzymes which catalyse joining of carbon-oxygen, carbon-sulphar, carbon-nitrogen and phosphorus-oxygen-
(1) Ligases (2) Lyases (3) Isomerase (4) Hydrolases

**38.** The protein part of enzyme is known as
(1) Holoenzyme (2) Apoenzyme (3) Isoenzyme (4) All of the above

**39.** DNA nucleotides of two strands are attached by
(1) Hydrogen bonds (2) Van der Waals bond
(3) Covalent bond (4) Electrovalent bond

**40.** DNA contains nitrogen bases
(1) AGTC (2) AGCU (3) CTAU (4) GAUT

**41.** Enzymes that catalyze the linking together of two components are
(1) Ligases (2) Isomerases (3) Lyases (4) Transferases

**42.** Which of the following molecules moves regularly from the nucleus to the cytoplasm?
(1) Glycogen (2) RNA (3) DNA (4) Cholesterol

**43.** Which of the following statements is NOT CORRECT?
(1) The main source of coenzymes are vitamins
(2) Competitive inhibition of enzyme is irreversible
(3) Enzymes have one or more active sites to interact with the substrate
(4) Proenzymes have to be activated by proteolytic enzyme

**44.** The loss of the secondary, tertiary and quaternary structure of an enzyme brings about
(1) loss of its catalytic activity (2) Thermostability
(3) Increase in water solubility (4) Loss in lipid solubility

**45.** Formation of m-RNA from DNA is called
(1) Transduction (2) Transformation (3) Translation (4) Transcription

## SPP Answers

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1.** | (4) | **2.** | (2) | **3.** | (2) | **4.** | (4) | **5.** | (4) | **6.** | (3) | **7.** | (4) |
| **8.** | (3) | **9.** | (2) | **10.** | (3) | **11.** | (1) | **12.** | (3) | **13.** | (1) | **14.** | (3) |
| **15.** | (1) | **16.** | (2) | **17.** | (3) | **18.** | (4) | **19.** | (4) | **20.** | (1) | **21.** | (3) |
| **22.** | (4) | **23.** | (3) | **24.** | (3) | **25.** | (2) | **26.** | (2) | **27.** | (4) | **28.** | (4) |
| **29.** | (3) | **30.** | (4) | **31.** | (3) | **32.** | (2) | **33.** | (2) | **34.** | (4) | **35.** | (1) |
| **36.** | (4) | **37.** | (1) | **38.** | (2) | **39.** | (1) | **40.** | (1) | **41.** | (1) | **42.** | (2) |
| **43.** | (2) | **44.** | (1) | **45.** | (4) | | | | | | | | |