

Code No.

J – 2266

**Entrance Examination for Admission to the P.G. Courses in the Teaching
Departments, 2020**

CSS

BIOCHEMISTRY

General Instructions

1. The Question Paper is having two Parts — Part 'A' Objective type (60%) & Part 'B' Descriptive type (40%).
2. Objective type questions which carry 1 mark each are to be (✓) 'tick marked' in the response sheets against the appropriate answers provided.
3. 8 questions are to be answered out of 12 questions carrying 5 marks each in Part 'B'.
4. **Negative marking** : 0.25 marks will be deducted for each wrong answer in Part 'A'.

Time : 2 Hours

Max. Marks : 100

To be filled in by the Candidate

Register Number	in Figures								
	in words								

PART – A
(Objective Type)

Choose appropriate answer from the options in the questions. **One mark each.**

(60 × 1 = 60 marks)

1. The cellular organelles predominantly responsible for respiration and energy metabolism.

a) Glyoxysomes	b) Golgi apparatus
c) Mitochondria	d) Nucleus

DO NOT WRITE HERE

-
2. The structural and functional unit of nervous system is
- | | |
|--------------|-----------------|
| a) Neuroglia | b) Nephron |
| c) Neuron | d) Renshaw cell |
3. Sterilization techniques are introduced by
- | | |
|---------------------------|----------------------|
| a) Louis Pasteur | b) Robert Koch |
| c) Antony Van Leeuwenhoek | d) Alexander-Fleming |
4. Carbondioxide acceptor in C_3 plants is
- | | |
|---------------------|-------------------------|
| a) Malic acid | b) Ribulose diphosphate |
| c) Oxaloacetic acid | d) Phosphoglyceric acid |

5. The hormone(s) secreted by thyroid gland
- a) Tetraiodothyronine
 - b) Triiodothyromine
 - c) Calcitonin
 - d) All of the above
6. The site of the metabolism of foreign compounds
- a) Brain
 - b) Liver
 - c) Heart
 - d) Kidney
7. Salivary/Pancreatic amylase specifically acts on
- a) α -1, 4 glycosidic bonds
 - b) α -1, 6 glycosidic bonds
 - c) β -1, 4 glycosidic bonds
 - d) None of the above bonds
8. The respiratory mechanism for blood pH maintenance primarily acts by regulating the concentration of
- a) Haemoglobin
 - b) Carbonic acid
 - c) Bicarbonate
 - d) Phosphate
9. Most of the amino acids found in human body are
- a) L-isomers
 - b) D-isomers
 - c) D and L isomers
 - d) Optical isomers
10. All of the following statements are correct for enzymes. Except
- a) Enzymes are proteins
 - b) Enzymes are catalysts
 - c) Enzymes speed up chemical reactions by lowering energy of activation
 - d) Enzymes alter equilibrium constant of the reaction which they catalyze
11. The quickest method for separation of proteins
- a) Electrophoresis
 - b) High performance liquid chromatography
 - c) Ion-exchange chromatography
 - d) Thin layer chromatography

12. The enzymes of glycolysis are located in
- a) Mitochondria
 - b) Cytosol
 - c) Nucleus
 - d) Golgi apparatus
13. The first successful gene therapy in humans was carried out for the enzyme
- a) Lipoprotein lipase
 - b) Glucose 6-phosphatase
 - c) Adenosine deaminase
 - d) Tyrosinase
14. The chief buffering system in the blood
- a) K_2HPO_4 and KH_2PO_4
 - b) B.Protein and H.Protein
 - c) $NaHCO_3$ and H_2CO_3
 - d) B. haemoglobin and H.haemoglobin
15. When pH falls by 1 unit, the hydrogen ion concentration?
- a) Decreases 10 times
 - b) Increases two fold
 - c) Changes by 7 times
 - d) Increases 10 times
16. Which of the following compound does not contain a high energy bond?
- a) Fructose-1, 6-biphosphate
 - b) 1, 3-biphosphoglycerate
 - c) Succinyl CoA
 - d) Creatine phosphate
17. The concentration of IgE class of Immunoglobulin increases in blood in
- a) Allergic reaction
 - b) Cancers
 - c) Cold conditions
 - d) Neonatal life
18. Increased blood glucose level (hyperglycemia) is an in available feature of the disease
- a) Diabetes insipidus
 - b) Diabetes mellitus
 - c) Cushing's syndrome
 - d) None of the above

19. The normal fasting plasma glucose level is
- a) 40–6 mg/100 mL
 - b) 70–11 mg/100 mL
 - c) 120–15 mg/100 mL
 - d) 160–18 mg/100 mL
20. DNA replication requires all, except
- a) Elongation factor
 - b) Deoxynucleotide phosphates
 - c) DNA polymerase
 - d) RNA primer
21. Lysosomes are
- a) Power house of the cell
 - b) Bags of hydrolytic enzymes
 - c) Store house for genetic information
 - d) Interconnected channels in the cytoplasm
22. The following are the contractile proteins except
- a) Actin
 - b) Myosin
 - c) Troponin
 - d) Myoglobin
23. Penicillin was discovered by
- a) Ehrlich
 - b) Alexander-Fleming
 - c) Thomas
 - d) Medawar
24. ATP formation in light reaction of photosynthesis is
- a) Oxidative phosphorylation
 - b) Photo phosphorylation
 - c) Substrate phosphorylation
 - d) Decarboxylation
25. Hormones are characterized by all of the following except they (are)
- a) Organic chemical messengers
 - b) Produced in minute quantities by specific glands
 - c) Control metabolic and biological activities
 - d) Directly act on the target cells

26. Cytochrome P₄₅₀ is dependent on the coenzyme
- a) NADH
 - b) NADPH
 - c) FADH₂
 - d) FMNH₂
27. Emulsification lipids is important for their digestion. Which is mainly brought out by
- a) Proteins
 - b) Phospholipids
 - c) Bile salts
 - d) Polysaccharides
28. The O₂ dissociation curve is
- a) Straight line
 - b) Sigmoid curve
 - c) Circular curve
 - d) Rhombus shaped
29. All of the following are sugar alcohols, except
- a) Dulcitol
 - b) Mannitol
 - c) Xylulose
 - d) Sorbitol
30. As per the IUB system, enzymes are grouped into the following number of major classes
- a) 2
 - b) 4
 - c) 6
 - d) 8
31. On electrophoresis, serum proteins can be separated into
- a) 3 bands
 - b) 5 bands
 - c) 7 bands
 - d) 9 bands
32. Which amino acid does not undergo transamination?
- a) Leucine
 - b) Isoleucine
 - c) Lysine
 - d) Alanine

33. The term genome refers to the
- a) Functional unit gene
 - b) Total genetic information contained in a cell
 - c) Structural genes only
 - d) Operator genes only
34. In a Hb molecule, 1 molecule globin combines with
- a) 2 heme mol
 - b) 4 heme mol
 - c) 8 heme mol
 - d) 6 heme mol
35. Osmosis is opposite to
- a) Effusion
 - b) Affusion
 - c) Confusion
 - d) Diffusion
36. The change in the heat content of a reaction is represented by
- a) Free energy
 - b) Enthalpy
 - c) Entropy
 - d) Exergonic reaction
37. The Immunoglobins secreted in Saliva, tears and milk is
- a) IgG
 - b) IgA
 - c) IgM
 - d) IgE
38. Which enzyme test is more specific for parenchymal (hepato cellular) liver disease?
- a) Acid Phosphatase (ACP)
 - b) Alanine amino transferase (ALT)
 - c) Lactate dehydrogenase (LDH)
 - d) Amylase
39. Most of the carbohydrates found in human body are
- a) D-Isomers
 - b) L-Isomers
 - c) D and L Isomers
 - d) None of these

40. All the bases are found in mRNA, except
- a) Adenine
 - b) Guanine
 - c) Uracil
 - d) Thymine
41. Golgi bodies are
- a) Involved in phagocytosis
 - b) Temporary storage sites for secretory products
 - c) Concerned with disposal of waste products
 - d) Engaged in transport of molecules in to mitochondria
42. Structural and functional unit of the muscle is
- a) Sarcomere
 - b) Sarcotubular system
 - c) Sacroplasmic reticulum
 - d) Sarcolemma
43. Following are the counter stains used in acid fast staining except
- a) Malachite green
 - b) Methylene blue
 - c) Safranine
 - d) Picric acid
44. Photosynthesis is
- a) Catabolic process
 - b) Anabolic process
 - c) Secretary process
 - d) Denaturation process
45. The hormones synthesized by Adenal Medulla.
- a) Epinephrine and Norepinephrine
 - b) Thyroxine and Triiodothyronine
 - c) Cortisol and Cortisone
 - d) Pregnenolone and Progesterone
46. The most common form of conjugation under detoxification involves the following agent
- a) Glucuronic acid
 - b) Glycine
 - c) Cysteine
 - d) Glutamine

47. The energy liberated during the metabolic reactions is primarily
- a) ADP
 - b) CTP
 - c) ATP
 - d) GTP
48. Carbon dioxide transport occurs in blood in the form of
- a) Physical solution
 - b) Combination with Hb
 - c) As bicarbonate
 - d) All of the above
49. Saponification number of a fat molecule
- a) Decreases with Increase in molecular weight of fat
 - b) Increases with Increase in molecular weight of fat
 - c) Decreases with Increase in number of double bonds
 - d) Increases with Increase in number of double bonds
50. Most of the coenzymes are derivatives of
- a) Water soluble vitamins
 - b) Fat soluble vitamins
 - c) Proteins
 - d) Nucleic acids
51. Which of the following statements are true for affinity chromatography?
- a) It is another name for gas-liquid chromatography
 - b) It is a method that has only been applied to proteins
 - c) It has proved valuable for purifying enzymes
 - d) Its disadvantage is lack of specificity in separating macromoles
52. Which amino acid is required for both purine and pyrimidine synthesis?
- a) Glycine
 - b) Aspartate
 - c) Alanine
 - d) Glutamate
53. The blotting techniques respectively used for the identification of DNA, RNA and Protein
- a) Northern blot, Southern blot and Western blot
 - b) Southern blot, Northern blot and Western blot
 - c) Western blot, Northern blot and Southern blot
 - d) Southern blot, Western blot and Northern blot

54. The normal pH of blood
- a) 7.15 – 7.25
 - b) 7.25 – 7.35
 - c) 7.35 – 7.45
 - d) 7.45 – 7.55
55. Hemolysis is caused by dilution of RBC by
- a) Diffusion
 - b) Osmosis
 - c) Effusion
 - d) Imbibation
56. One of the following is not usually a substrate for electron transport chain
- a) FADH_2
 - b) NADH
 - c) NADPH
 - d) None of the above
57. Hybridoma technique is used for synthesis of
- a) Monoclonal Ab
 - b) Polyclonal Ab
 - c) Both of these
 - d) None of these
58. Standard urea clearance is calculated when the urine output is
- a) Less than 2 ml/min.
 - b) More than 2 ml/min.
 - c) 2–4 ml/min.
 - d) More than 4 ml/min.
59. Thin filaments of muscle are made up of the following proteins except
- a) Actin
 - b) Myosin
 - c) Troponin
 - d) Tropomyosin
60. Compared to the pH of blood, urine normal pH is
- a) acidic
 - b) alkaline
 - c) neutral
 - d) the same

ANSWER SHEET — PART — A

1	A	B	C	D	E
2	A	B	C	D	E
3	A	B	C	D	E
4	A	B	C	D	E
5	A	B	C	D	E
6	A	B	C	D	E
7	A	B	C	D	E
8	A	B	C	D	E
9	A	B	C	D	E
10	A	B	C	D	E
11	A	B	C	D	E
12	A	B	C	D	E
13	A	B	C	D	E
14	A	B	C	D	E
15	A	B	C	D	E
16	A	B	C	D	E
17	A	B	C	D	E
18	A	B	C	D	E
19	A	B	C	D	E
20	A	B	C	D	E

21	A	B	C	D	E
22	A	B	C	D	E
23	A	B	C	D	E
24	A	B	C	D	E
25	A	B	C	D	E
26	A	B	C	D	E
27	A	B	C	D	E
28	A	B	C	D	E
29	A	B	C	D	E
30	A	B	C	D	E
31	A	B	C	D	E
32	A	B	C	D	E
33	A	B	C	D	E
34	A	B	C	D	E
35	A	B	C	D	E
36	A	B	C	D	E
37	A	B	C	D	E
38	A	B	C	D	E
39	A	B	C	D	E
40	A	B	C	D	E

41	A	B	C	D	E
42	A	B	C	D	E
43	A	B	C	D	E
44	A	B	C	D	E
45	A	B	C	D	E
46	A	B	C	D	E
47	A	B	C	D	E
48	A	B	C	D	E
49	A	B	C	D	E
50	A	B	C	D	E
51	A	B	C	D	E
52	A	B	C	D	E
53	A	B	C	D	E
54	A	B	C	D	E
55	A	B	C	D	E
56	A	B	C	D	E
57	A	B	C	D	E
58	A	B	C	D	E
59	A	B	C	D	E
60	A	B	C	D	E

BIOCHEMISTRY

PART – B (Descriptive Type)

Answer **any eight** questions.

(8 × 5 = 40 Marks)

1. Enumerate four types of special culture media with one example of each.
2. Name the cells present in the islets of Langerhans? Which hormone is secreted by each of them.
3. What do you know about cytochrome P₄₅₀?
4. Describe the role of chymotrypsin, name two other digestive enzymes of the same category secreted by the same gland.
5. What is Xanthoprotein reaction?
6. What are ribozymes?
7. What are the fractions obtained in paper electro-phoresis of serum?
8. Why citric acid cycle is considered the common pathway for carbohydrates, fat and protein metabolism?
9. What is Western Blot test? What is its use and how it is carried out?
10. Enumerate the important functions of plasma proteins.
11. What are the major cells of Immune system?
12. What is creatinine clearance and what is its significance?

