

Zoology
M.Sc. I (Semester II),
Physiological Chemistry (MZT 201)

1 one sentence answer Question (2 Marks)

1. Define pH and buffer
2. Define polysaccharide with example
3. What are the different types of protein?
4. What is B-oxidation?
5. Draw the structure of hydrogen atom
6. Define nucleic acid with example
7. Summarize the glycolysis pathway in one reaction.
8. Draw the structure of glucose
9. State the two functions of protein
10. Give the names of phospholipids.
11. Give the names of steroidal hormones.
12. State the law of thermodynamics
13. Define Molecule with example
14. How many total ATPs (energetics) are produced from TCA cycle?
15. Define transamination.
16. What is gluconeogenesis?
17. Give the two examples of complex lipids
18. Why the carnitine shuttle is important in the B-oxidation?
19. Draw the structure of triacylglycerol.
20. What are the building blocks of proteins?
21. State the forms of DNA?
22. Which Bond is present between two amino acids?
23. What are the constituents of RNA?
24. What is Nucleotides ?
25. What are the Nucleosides?

26. What is the diameter between two strands of DNA?

Ong Answer Questions (6 marks)

1. Describe the structure and function of water.
2. Describe biosynthesis of cholesterol
3. Describe Krebs cycle in brief.
4. Explain in detail transamination.
5. What is pH explain in detail with example.
6. What is Lipid? Give detail account of classification of Lipid.
7. What is chemical bond? Describe the types of chemical bonds
8. Describe in detail B- oxidation of fatty acids.
9. Describe the structure and function of water.
10. Describe urea cycle
11. What is buffer explain in detail with example.
12. Describe the alternative pathway for the glycolysis or HMP Shunt
13. What is protein? Give detail account of classification of protein.
14. Describe in detail gluconeogenesis pathway
15. Describe the pathway that converts glucose to pyruvate or lactate.
16. Explain in detail uronic pathway.
17. What is phospholipids? Describe biosynthesis of membrane phospholipids.
18. Describe the structure and function of water.
19. Describe in detail biosynthesis of triacylglycerides.
20. Describe the synthesis of phosphatidic acid.
21. Describe the Watson and Crick model of DNA.
22. Describe the classification of Protein.
23. Describe in detail structural organization of protein.
24. Describe in detail different types of RNA.
25. Describe in detail biosynthesis of Nucleotides.
26. Describe in detail biosynthesis of amino acids.

27. Explain in detail biosynthesis of nucleosides.
28. Explain in detail synthesis of DNA and RNA.
29. Describe in detail Functions of carbohydrates.
30. Describe Watson and Crick model of DNA.
31. Explain in detail HMP shunt.

Short answer Question - 4 marks

1. Explain transamination process
2. Write a note on synthesis of cardiolipin.
3. Write a note on Electron transport chain
4. Write a note on buffer
5. Write a note Oxidative decarboxylation
6. Describe basics of solution preparation
7. Write short note on glycogenolysis.
8. Write a note pH
9. Explain Ramchandran plot
10. Describe Glycogenesis pathway
11. Describe Classification of protein
12. Write short note on synthesis of phosphatidyl serine
13. Write a note on molecule
14. Write a note on polysaccharides.
- 15.** Explain deamination process
16. Write a note on buffer with example.
17. Describe B-oxidation process
18. Describe the deamination pathway.
19. Write short note on prostaglandin
20. Describe Glycogenesis pathway
21. Write short note on Chemical bonds

22. Write a note on classification of carbohydrates.
23. Write a note on properties of water
24. Describe the formation of Plasmalogen
25. Describe the formation of spingomyalin
26. Write note on law of thermodynamics.\
27. Primary structure of protein
28. Biological function of DNA
29. Biological significance of protein
30. Clover leaf model of RNA
31. Secondary structure of protein
32. Purine and Pyrimidine structure.
33. Describe the formation
34. Write a note on synthesis of lecithin.
35. Write a note on synthesis of phospholipid cephalin
36. Write a note on synthesis of phosphatidic inositol
37. Describe Hexose monophosphate pathway
38. Describe the synthesis of pyruvate from Glucose.
39. Describe gluconeogenesis by amino acids.
40. Explain how ATP are produced from Glycerol and fatty acids.
41. Draw the structure of glycerol and fatty acids.
42. Write a note on disaccharides.
43. Write a note on phospholipids.
44. Write a note on essential amino acids.
45. Write a note on Covalent bond
46. Write a note on atom
47. Write a note on hydrogen bond
48. Describe pyruvate dehydrogenate complex.
49. Write difference between ionic and covalent bond
50. Write a note on ionic bond.

M.Sc. I Semester II, Examination
Subject: Zoology
Quantitative Biology and Tools and Techniques in Biology MZT 202

Question Bank

Q.1: Define following Terms/ Answer in One Sentence (2 marks)

- 1) What is Arithmetic mean?
- 2) What is the Karl Pearson's coefficient of correlation?
- 3) Who invented the first microscope?
- 4) What is Chromatography ?
- 5) What is Formula of median for continuous data?
- 6) What is the full form of ELISA?
- 7) Define Molecular Sieve Chromatography.
- 8) Define Probability.
- 9) What is ANOVA?
- 10) What is Central Tendancy?
- 11) Give long form of NMR.
- 12) Define Electrophoresis.
- 13) Define Density gradient centrifugation.
- 14) Give long form of SEM.
- 15) Give long form of TEM.
- 16) What is HPLC?
- 17) Define TLC
- 18) Define GLC
- 19) What is Ion exchange chromatography?

- 20) Define Chi- square test.
- 21) Define Student t- test.
- 22) What is Immunoblotting?
- 23) Write any two applications of Electrophoresis.
- 24) What is isoelectric point?
- 25) Define mean.

Q2) Attempt the Following questions .

(6 Marks)

- 1) In a class there are 20 students and they have secured a percentage of 88, 82, 88, 85, 84, 80, 81, 82, 83, 85, 84, 74, 75, 76, 89, 90, 89, 80, 82, and 83. Find the mean percentage obtained by the class.
- 2) Write note on Thin layer chromatography .
- 3) Write note on Types of Electrophorsis.
- 4) Differentiate between SEM And TEM.
- 5) Explain Different Parts of light microscope.
- 6) Explain in detail Gel Eletrophoresis.
- 7) Explain in details various separation techniques.
- 8) Give detail procedure of Gas chromatography.
- 9) Write note on labeling antibodies.
- 10) Write in detail about Applications of Spectroscopy .

Q.3) Attempt the Following questions .

(6 Marks)

- 1) Define microscope? Explain in details any three types of light microscope?
- 2) Find the median & median class of the data given below.

Class boundaries	15-25	25-35	35-45	45-55	55-65	65-75
Frequency	4	11	19	14	0	2

- 3) Write note on Centrifugation and its types.
- 4) Write note on measurement of central tendency.
- 5) What is correlation explain its types.
- 6) What is regression and its applications?
- 7) Write in detail about Null hypothesis.
- 8) Write in detail about Ion exchange chromatography.
- 9) Write in detail about phase contrast microscope.
- 10) Write note on probability distribution.

Q.4) Attempt the Following questions .

(6 Marks)

- 1) What is coefficient of variation? State its importance?
- 2) Describe Fluorescence microscope and its application.
- 3) Describe Affinity Chromatography and its applications.
- 4) Describe procedure of electrophoresis of protein.
- 5) Write procedure of ANOVA and its uses.
- 6) Write about binomial distribution and its uses.
- 7) What are the Applications and limitations of size exchange chromatography?
- 8) Write in detail Null hypothesis and its applications.
- 9) Draw well labeled diagram of Rotar.
- 10) Write note on Immunochemistry.

Q.5) Attempt the Following questions .**(4 Marks)**

- 1) Describe in detail Electron microscope?
- 2) Find the mode Of the following data

Marks	1-5	6-10	11-15	16-20	21-25
Number of students	7	10	16	32	24

- 3) Write a note on Electrophoresis and its uses.
- 4) Draw well labeled diagram of HPLC
- 5) Write applications of GLC.
- 6) Write applications of Affinity chromatography.
- 7) Write applications of isoelectric focusing
- 8) Draw diagrams of SEM.
- 9) Draw diagrams of TEM.
- 10) Write a note on methods of correlation.
- 11) Write note on multiplication theory.
- 12) Write note on applications of Level of significance.
- 13) Draw diagram of Light Microscope.
- 14) Write note on cytometry.
- 15) Write note on procedure of Alternative hypothesis.

Q.6) Attempt the Following questions .**(4 Marks)**

- 1) The following data are the marks of 10 students. Calculate S. D.

Marks in Zoology- 8, 9, 15, 23, 5, 11, 19, 8, 10, 12

- 2) Write note process of labeling antibodies.
- 3) Write limitations of Ion exchange chromatography.
- 4) Write note on applications of Light Microscope.
- 5) Write note on Applications of Alternative hypothesis.
- 6) Draw well labeled diagrams of Affinity chromatography
- 7) Write note on types of immunoprecipitation.
- 8) Draw flowchart of Thin layer Chromatography.
- 9) Write flowchart of HPLC.
- 10) Write flowchart of GLC.
- 11) Give one Example of Discrete series.
- 12) Draw a well labeled diagram of molecular sieve chromatography.
- 13) Write note on ELISA.
- 14) Write note and Formula of median for continuous data?
- 15) Write applications of coefficient of correlation?

Q.7) Attempt the Following questions .

(4 Marks)

- 1) Write note on Affinity chromatography.
- 2) Write note limitations of immunoprecipitation.
- 3) Example Find the value of mode from following:

Weight (kg)	30-34	35-39	40-44	45-49	50-54	55-59	60-64
No. of students	3	5	12	18	14	6	2

4. Find the median & median class of the data given below.

Class boundaries	15-25	25-35	35-45	45-55	55-65	65-75
Frequency	4	11	19	14	0	2

5. Calculate the mode of the following frequency distribution.

Height in inch	58	59	60	61	62	63	64	65	66	67	Total
No. of person	4	6	5	10	20	22	24	6	2	1	100

6. Calculate the correlation coefficient between X and Y from the following data

X	5	9	13	17	21
Y	12	20	25	33	35

7. Calculate the correlation coefficient between X and Y from the following data

X	1	2	3	4	5	6	7	8	9
Y	10	11	12	14	13	15	16	17	18

8. In an examination 10 students obtained the following marks in Mathematics and Physics. Find the coefficient of rank correlation.

Mathematics	90	30	82	45	32	65	40	88	73	66
Physics	85	42	75	68	45	63	60	90	62	58

9) Calculate the mode of the following frequency distribution.

Height in inch	58	59	60	61	62	63	64	65	66	67	Total
No. of	4	6	5	10	20	22	24	6	2	1	100

person											
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10) Give flowchart of NMR.

11) Write Process of ESR.

12. Ten students got the following percentage of marks in Mathematics and statistics. Find the coefficient of rank correlation.

Mathematics	8	36	98	25	75	82	92	62	65	35
Statistics	84	51	91	60	68	62	86	58	35	49

13. Find out the value of quartile deviation and its coefficient from the following data

Roll no.	1	2	3	4	5	6	7
marks	20	28	40	12	13	15	50

14. Calculate Q.D. and coefficient of Q.D. from the following data.

Wages(R)	Less than 35	35-37	38-40	41-43	Over 43
Number of wage earner	14	62	99	18	7

15. Find range, Q.D. and their coefficients from the following data

Value	10	20	30	40	50	60	70
Frequency	6	9	15	28	12	6	3

Question Bank on Paper no. MZT 203, Elements of Physiology

Define

1. Expiration
2. Inspiration
3. Alveoli
4. Ventilation
5. Carbonic unhydrase
6. Residual volume
7. Pneumotaxic centre
8. Spirocentre
9. Excretion.
10. Neuron.
- 11.Nephron.
- 12.Diuretics
- 13.Micturition.
- 14.Synapse.
- 15.Endocrine gland.
- 16.What do you mean by CSF.
17. Impulse.
- 18.Erythropoiesis.
- 19.Mention name of disease caused by Vitamin B1
- 20.Cardiac Cycle
- 21.Which factors are used to calculate BMR?
- 22.Obesity
- 23.Homeostasis
- 24.Digestion
- 25.Salivary glands
26. Define ECG
- 27.Diffusion
- 28.Enlist the Dietary sources of Vit.B12
- 29.Blood

Write Short notes on -

1. Pulmonary ventilation
2. Pulmonary lung volumes
3. Lung Capacities
4. Bohr effect

5. Hamburgers Phenomenon
6. Transport of O₂
7. Oxygen dissociation curve
8. Define excretion? Describe ultra structure of nephron & add a note on physiology of Urine formation.
9. With the help of neat labelled diagram describe structure of pituitary gland.
10. Describe hormones of anterior lobe of pituitary gland.
11. Describe structure & functions of thyroid gland.
12. Define nerve impulse? Describe transmission of nerve impulse through synapse.
13. CSF
14. Liver
15. Pancreas
16. Types of body fluids
17. Types fat soluble vitamins
18. Sources fat soluble vitamins
19. Function of fat soluble vitamins
20. Cardiac Muscle
21. Dietary balance
22. Vitamin B
23. Diuretics
24. Oxytocin

Long questions

1. What is respiration? Explain physiology of gaseous exchange?
2. What is respiration? Describe the respiratory system in human.
3. Define respiration. Describe the control mechanism of respiration
4. Describe lung volumes and capacities.
5. Describe respiration. Give an account on transport of CO₂.
6. Structure of nephron.
7. Mechanism of Urine formation.
8. Regulation of urine formation.
9. Process of micturition.
10. Diuretics.
11. Structure of neuron.
12. Hormones of posterior lobe of pituitary gland.
13. Parathyroid gland.
14. Bone marrow.
15. Erythropoiesis.

16. Anatomical features of gastrointestinal tract .
17. Digestion and Absorption of proteins
18. Digestion and Absorption of Carbohydrates
19. What are requirements prior to blood transfusion
20. Describe the mechanism of blood coagulation .
21. Describe ABO blood group System .
22. Describe Ultrastructure of Nephron
23. Sketch and label the major organs of the digestive system and state their functions.
24. Summarize the role of the B vitamins in metabolism.
25. Describe blood clotting factors
26. ECG
27. Indications of blood transfusion

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**M.Sc. I Semester II
Biology of Parasite (MZT:204)**

QUESTION BANK

Q.1: Define following Terms/ Answer in One Sentence

1. Define host?
2. What is mutualism?
3. What are the examples of parasites?
4. What are two examples of commensalism?
5. Write the intermediate hosts of *Faciola hepatica*.
6. What is vector of Kala azar?
7. What are the intraspecific association?
8. What is the example of mechanical vector?
9. What is the common name of *Schistosoma haematobium*?
10. Define Parasite?
11. Which are the target organs that affect plant by plant parasites?
12. What are the interspecific association?
13. What are the examples of endoparasite.
14. What is commensalism?
15. What are two examples of mutualism?
16. What is Causative agent of Kala azar?
17. What is habitat of *Trichomonas tenax*?
18. What is common name for *Echinococcus granulosus*?
19. Which is the longest tapeworm found in man?
20. What is Causative agent of bubonic plague?
21. Which is the intermediate host of filarial worm?
22. What is vector of Kala azar?
23. What is the example of mechanical vector?

24. Which disease transmitted by Rat flea?
25. What is Vector?
26. What is Causative agent?
27. What is the scientific name of Sand fly?
28. Which is the habitat of *Aedes aegypti* larvae?
29. Which is causative agent of elephantiasis?
30. Which is causative agent of Borrelia?
31. Which disease transmitted by larval mites?
32. What is the scientific name of Rat flea?
33. What is the causative agent of Rickettsial pox?
34. What is the vector of Rickettsial pox?
35. What is the average size of adult Rat flea?
36. What are the symptoms of Lyme disease?
37. Which is vector of relapsing fever?
38. What is causal organism for oriental sore?
39. Name the vector for *Trypanosoma gambiense*.
40. Name the disease caused by *Trypanosoma cruzi*.
41. What is the habitat for *Giardia lamblia*?
42. What is common name for *Diphylidium caninum*?
43. Name the longest Tape worm found in man.
44. Name the definitive host for *Echinococcus granulosus*.
45. Name the causal organism of American visceral *Leishmaniasis*.

Q. 2) Long questions

1. Describe in detail the parasitic adaptation.
2. Describe life cycle & pathogenicity of *Trypanosoma gambiense*.
3. Explain the life cycle of *Fasciola hepatica*.
4. Describe the mode of transmission of bubonic plague & symptoms of bubonic Plague.
6. What is Vector? Explain the types of vectors with one example in detail.
7. Describe morphology, life cycle, pathogenicity of *Taenia solium*.
8. Discuss morphology, life cycle, pathogenicity of *Leishmania donovani*.

9. Explain the life cycle of *Schistosoma*.
10. Describe the mode of transmission of filariasis & symptoms of filariasis
11. Explain the pathogenicity of *Wucheria*.
12. Describe the mode of transmission of kala azar & symptoms of kala azar
13. Describe the modes of transmission of parasite.
14. Explain general pattern of transmission of diseases.
15. Explain life cycle of filarial worm.
16. Give different types of plant parasites and their effect on plant.
17. Describe morphology, life cycle, pathogenicity of *Taenia saginata*.
18. Describe life cycle & pathogenicity of *Trypanosoma cruzi*.
19. Describe life cycle & pathogenicity of *Echinococcus granulosus*.
20. What is Vector? Explain the Arthropod as vectors with example in detail.
21. Describe the mode of transmission of Loa loa filariasis & symptoms and their Treatment.
22. Describe the mode of transmission of malaria and symptoms of malaria.
23. Explain the mode of transmission of relapsing fever and lyme disease and their symptoms.
24. Describe the mode of transmission of Dengue fever and explain the characteristics Of febrile and critical phase.

❖ **Short Notes**

1. Causative agent and Symptoms of kala azar
2. Control of water born parasite
3. Write a short note on mutualism
4. Write a short note on Horse fly as a vector.
5. Reservoir host
6. Control measure of mosquito
7. write a short note on mode of transmission of malaria
8. Intermediate host
9. *Fasciola hepatica*
10. Symptoms of Bubonic plague

11. Control of food born parasite
12. Write a short note on host specificity
13. Write a short note on Rat flea as a vector.
14. parasitism
15. *Giardia lamblia*
16. *Trichomonas vaginalis*
15. Ticks and Mites
16. .House fly as vector
17. Symptoms of Dengue
18. Control of water born parasite
19. Write a short note on Commensalism
20. Write a short note on Tsetse fly as a vector.
46. Parasitism
- 47.. *Trichomonas tenax*
48. Ticks and Mites
49. Horse fly as vector
50. Types of Hosts.
51. Definitive hosts.
52. Cercaria larva of schistosoma
53. Explain pathogenicity of filarial worm
54. Write a note on Sand fly as vector
55. Symptoms and treatment of Loa loa filariasis.
56. Write a short note on Mosquito as vector.
57. Morphology of *Wucheria bancrofti*
58. Write a note on Symptoms of Relapsing fever and Lyme disease.
59. Write a short note on mode of transmission of DENGUE
60. Morphology of Rat flea.
61. Symptoms of sleeping sickness.
62. Types of vectors
63. Write a note on *Taenia asiatica*
64. Write a note on *Taenia multiceps*

65. Prophylaxis of *Taenia solium*
66. Prophylaxis of *Taenia saginata*
67. Cysticercusbovis