

2023

4th Semester Examination

ZOOLOGY (Honours)

Paper : C 8-T

(Comparative Anatomy of Vertebrates)

[CBCS]

Full Marks : 40

Time : Two Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Group - A

Answer any *five* questions : $2 \times 5 = 10$

- 1/ What is ductus arteriosus?
2. Define axial and appendicular skeleton.
- 3/ What is diastema?
- 4/ Write the function of air sac.
5. Write the functions of Leydig cell.
6. What is gonopodium?

P.T.O.

(2)

7. Write the distribution of Abducens and vagus nerve.

8. What is neuromast cell?

Group - B

Answer any *four* questions : $5 \times 4 = 20$

9. Classify receptors according to stimuli and give example of each type of receptor.

10. Write the structure of venus heart.

11. Write a short note on Jaw suspension.

12. Write a note on different integumentary glands of mammals.

13. Compare aortic arches between aves and mammals with suitable diagram.

14. Write a note on amphibian respiratory organ.

Group - C

Answer any *one* question : $10 \times 1 = 10$

15. Describe pronephros, mesonephros and metanephros with suitable example. Distinguish between horns and antlers.

$6 + 3 + 1 = 10$

16. Write the process of foregut fermentation. What is calamus and rachis? What is down feather? $7 + 3 = 10$



2023

4th Semester Examination
ZOOLOGY (Honours)

Paper : C 9-T

(Animal Physiology : Life Sustaining System)

[CBCS]

Full Marks : 40

Time : Two Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Group - A

Answer any *five* questions : $2 \times 5 = 10$

1. State the function of chylomicrons.
2. Express vital capacity in terms of volumes.
3. What is Bombay phenotype?
4. Differentiate between Stenohaline and Euryhaline.
5. What is JGA?
6. Define Haemostasis.

P.T.O.



(2)

7. What is crypts of Lieberkuhn?
8. Name one protein and one nucleic acid digesting enzymes. 1+1

Group - B

Answer any *four* questions : 5×4=20

9. State the role of TMAO. Briefly discuss osmoregulatory process of fresh water fish in high Salt environment. 2+3
10. Define thermogenesis. Comment on the strategies applied by endothermic animals to retain heat in their body. 1+4
11. Briefly discuss the Counter Current Mechanism to concentrate urine in mammalian kidney. 5
12. What is chloride shift? Briefly explain Bohr effect. 2+3
13. Write a short note on digestion of protein in different parts of GI tract. 5
14. Elaborate the term Inotropism, Chronotropism. 2½+2½

Group - C

Answer any *one* question : 10×1=10

15. State the significance of fibrinolytic system. Discuss the different events of ventricular cycle. Show the relationship of cardiac output with stroke volume. What is Haldane effect? 2+4+2+2



(3)

16. Comment on the absorption of monosaccharide by small intestine. Describe the structure and function of filtration membrane of nephron. Discuss carbon monoxide poisoning.

3+(3+2)+2

2023

4th Semester Examination

ZOOLOGY (Honours)

Paper : C 10-T

(Immunology)

[CBCS]

Full Marks : 40

Time : Two Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Group - A

Answer any *five* questions : $2 \times 5 = 10$

1. State the primary components of HAT media in monoclonal antibody generation technique.
2. Mention the demerits of inactivated vaccine.
3. Classify the hypersensitivity reactions after Gell and Coombs' method.
4. What is T cell anergy?
5. What is passive immunization? Give example.

P.T.O.

6. Compare B cell and T cell specific epitopes.
7. Why the hinge region of an immunoglobulin molecule has high concentration of proline and cystine?
8. What are superantigens? Give example.

Group - B

Answer any *four* questions : $5 \times 4 = 20$

9. Describe the endocytic pathway of antigen processing and presentation with proper illustration. 5
10. Draw and describe the T cell receptor (TCR) complex. 5
11. Why it is essential to administer three or more doses of Polio vaccine for proper immunization against the virus? What are the different routes of vaccination? 2+3
12. Comment on the immune evasion strategies of *Plasmodium falciparum*. 5
13. State the types of cytokine reaction observed in immune system. 4+1
14. Explain with illustration the reason behind vigorous immunogenic response during secondary infection by a pathogen. 3+2



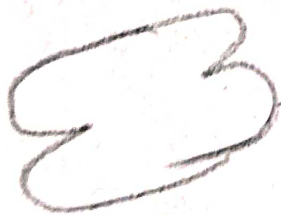
(3)

Group - C

Answer any *one* question : $10 \times 1 = 10$

15. Explain with illustration the method involved in detection of an antigen using indirect ELISA. State the significance of complement activation in immune system. What is immunotoxin? $4+4+2$

16. Draw and describe the structure of MHC II molecule. Explain the statement — “All immunogens are antigens but all antigens are not immunogens”. How does a natural killer (NK) cell destroy a virus infected cell? $4+2+4$



OR

(Sericulture)

Group - A

Answer any *five* questions : $2 \times 5 = 10$

1. Define Sericulture.
2. State the composition of silk.
3. What is moriculture?
4. What is cooking in Sericulture?
5. Difference between univoltine and bivoltine.
6. What is Stifling?
7. Write down any two sericulture farm of West Bengal?
8. Write the name of one protozoa and one fungi which causes silk worm disease.

Group - B

Answer any *four* questions : $5 \times 4 = 20$

9. Enlist different types of mulberry Silkworm races.
10. Highlight with Labelled diagram the different stages in the life cycle of *Bombyx Mori*.
11. Write a brief account on the history of sericulture in India.
12. Briefly describe spinning, harvesting and storage of cocoons in sericulture.

(5)

- ✓ 13. Mention the major varieties of mulberry plants. Enlist any two vertebrates and one invertebrates pests of silk worm.
- ✓ 14. Write down the control measures against the disease of silkworm.

Group - C.

Answer any *one* question : $10 \times 1 = 10$

15. (i) Briefly discuss the problems and prospect of sericulture (mulberry and Non-mulberry) in India. 6
- (ii) Write a short note on the production of DFLs (Disease Free Laying). 4
- ✓ 16. What is early age and late age rearing? State some rearing appliances used in sericulture. Mention the criteria for developing an ideal rearing house. 4+2+4
-