M.Sc.

2017

2nd Semester Examination

ZOOLOGY

PAPER—ZOO-202

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Answer *all* questions of the following.

Group-A

(*Biochemistry*)

1. Answer any *two* questions of the following : 2×2

(a) An enzyme catalyzed reaction has km of 1mM and V_{max} of 5 nM.S^{-1}. What is the reaction velocity when the substrate concentration is :

(i) 0·25 mM

(ii) 10 mM

(b) Write a note on structure of soluble electron carrier in oxidative phosphorylation.

(c) Explain why ATP act as a competitive inhibitor in phosphorylation reaction of hexo kinase.

(d) What do you mean by symmetric patterns in multimeric proteins.

2. Answer *two* questions of the following : 2×4

(a) Explain why degradation of odd chain fatty acids can boost the activity of cytric acid cycle.

(b) Explain how does the co-ordinated actions of trans-aldolase and transketolase recyles Xylulose-5-phosphate to Glucose-6-phosphate.

(c) State the mechanism of aldolase-I with proper illustrations.

(d) How do the following products get synthesized from amino acids.

(i) Serotonin ;

(ii) Glutathione. 2+2

3. Write *one* question from the following : 1×8

(a) (i) Explain the flow of electrons through Q cycle with proper diagram.

(ii) Give brief accounts of inhibitions of enzyme activity with appropriate diagram. 5+3

(b) (i) State the mechanism of β-oxidation of polyunsaturated fatty acid in mitochondria.

(ii) "Enzyme lowers the activation energy"—Explain your answer. 6+2

Group–B

(*Parasitology*)

4. Answer any *two* questions of the following : 2×2

(a) What is glycocalyx? Mention its function.

(b) What do you mean by relapses and recrudescence in malaria.

(c) Define vector. Differentiate vectors and intermediate host.

(d) Comment on (i) Chyluria;

(ii) PKDL.

5. Answer any *two* questions of the following : 2×4

(a) Enlist cytoskeletal proteins found in trophozoite of Giarelia. Schematically represent the binary fission and conjugation process occurs in Balanticlium. 1+3

(b) Enumerate the ultrastructural features of the trematode tegument.

(c) What is cerebral malaria ? Give scientific name of its causative organism. Highlights on the Pathogenecity in Kala-azar. 1+1+2

(d) What is molecular mimicry ? Add a note on VSG gene in Trypanosoma. 2+2

6. Answer any *one* questions from the following : 1×8

(a) Describe briefly the life cycle and Pathogenicity of Paragonimus sp. 6+2

(b) (i) Discuss the complement activation in the immunology of African trypanosomiasis.

(ii) State the development process of filarial worm within intermediate host. 5+3
