POST-GRADUATE COURSE

Term End Examination — June, 2017

ZOOLOGY

Paper - 3A : Physiology and Biochemistry

Time : 2 Hours **Full Marks : 50**

(Weightage of Marks : 80%)

Special credit will be given for accuracy and relevance in the answer. Marks will be deducted for incorrect spelling, untidy work and illegible handwriting. The weightage for each question has been indicated in the margin.

1. Answer *two* questions : $9 \times 2 = 18$

   a) What are oxidoreductases ? Classify oxidoreductases with citation of the mode of action of any one representative for each group. 1 + 8

   b) Distinguish between glycolysis and glycogenesis. Describe the EMP pathway of glycolysis. 3 + 6

   c) The evolution of parasitism in helminthes involved both structural and physiological modifications — discuss with citation of suitable examples. 7 + 2

   d) What is adaptation ? Discuss the salient adaptive features of desert animals. State the functional significance of electric organ of electric fishes. 1 + 6 + 2

2. Answer *three* questions : $6 \times 3 = 18$

   a) Give an account of biosynthesis of urea in liver. 6

   b) Discuss the mechanism of actin-myosin interaction in skeletal muscle. 6

   c) Explain the models of enzyme-substrate complex formation with suitable illustration. 6

   d) Write short notes on :

      i) Non-mediated transport

      ii) Carrier-mediated transport. 2 + 4

   e) Explain 'irreversible' and 'reversible' covalent modifications of enzymes with examples. What are ribozymes ? 4 + 2

   f) Explain pentose phosphate pathway of glucose metabolism. State the metabolic significance of this pathway. 4 + 2

3. Answer *two* questions : $4 \times 2 = 8$

   a) Give a brief account of transdeamination. 4

   b) Discuss the factors that modulate diffusion. 4

   c) Discuss the biosynthesis of serotonin. 4

   d) Give an account of the formation of amino-acyl *t*RNA. What is anti-codon ? 3 + 1

4. Answer *two* questions : $3 \times 2 = 6$

   a) What do you mean by LDL, VLDL and chylomicron ? 1 + 1 + 1

   b) Write a note on oxidative deamination. 3

   c) Discuss different causes of 'fatty liver'. 3

   d) Define and exemplify irreversible and irreversible covalent modifications of enzymes. 3