First Semester Examination-2017

M.Sc. ZOOLOGY

Paper Code: ZOO-103

Full Marks : 40 **Time: 2 Hours**

The figures in the margin indicate full marks.

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

Illustrate the answers whenever necessary.

Use separate Answer Scripts for Group-A & Group-B

Group A

(ANIMAL PHYSIOLOGY)

1. Answer any two questions from the followings. **2×2=4**

a. Draw the oxygen dissociation curve.

b. Define cardiac output.

c. Mention two factors affecting BMR.

d. Write a note on Haldane effect.

2. Answer any two questions from the following. **2×4=8**

a. Explain the role of Vit-A in dim light vision with proper diagram. State the role of vit-B_{12}. 2+2

b. What is E.C.G? Write down the principle of Frank starling mechanism. 1+3

c. Discuss the role of Baro-receptors in controlling blood pressure. Explain sympathetic regulator of heart rate. 2+2

d. What do you mean by Haemopoiesis? Enlist the sequence of steps occurring in Haemostasis. 1+3

3. Answer any one of the following. **1×8=8**

a. What do you mean by Pyrexia? Distinguish between Homeothermy and Heterothermy. Explain counter current heating mechanism with proper diagram. 1+2+5

b. Write short notes on any two of the following. 2×4=8

i). Myogenic and Neurogenic heart.

ii). Blood oxygen stores of Diving vertebrates.

iii). Physiological role of Ca.

iv). Phases of cardiac cycle.

Group-B

(Biotechnology & Techniques and Bioinstrumentation)

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

a). Write the application of RFLP?

b). What is PCR?

c). What is distribution coefficient k_d ?

d) Differentiate between Ex-Situ & In-Situ bioremediation?

5. Answer any two question of the following: **2×4=8**

a) What is cosmid? Schematically describe cosmid mediate cloning process. 1+3

b) What do you mean by DNA fingerprinting? What is its application in society? 1+3

c) What are the basic principles of Agarose gel electrophoresis? 4

d) What is phytoremediation? Mention two mechanism of phytoremediation? 1+1½+1½

6. Answer any two question of the following: **1×8=8**

a) i). Describe the detail protocol for recombinant DNA technology.

ii).What is the typical application for gel filtration?

iii). What are the K_{av} for very large and very small molecule? 3+3+2

b) i). What is stationary phase?

ii). Importance of Super Bug and its application?

iii). What is restriction modification system?

iv). What is the application of Cryopreservation? 2+2+2+2