

First Semester Examination-2017**M.Sc. ZOOLOGY**

Paper Code: ZOO-102

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****(Cell biology)**

1. Answer any two questions of the following. 2×2=4
 - a) What is cadherin? And its function.
 - b) Write a note of cell cycle in inhibitors?
 - c) What do you mean by Catastrophe in microtubular dynamics?
 - d) Function of TIM and TOM protein.

2. Answer any two questions of the following. 2×4=8
 - a) Add a short note on aquaporin. 4
 - b) Which receptor has constitutive kinase activity in TGF β signalling and its function? 1+3
 - c) What is MTOC? Add a short note on GPCR. 1+3
 - d) Briefly describe the role of cholesterol in membrane fluidity. What is flippase? 2+2
 - e) Describe the structure of F-type ATPase and how do they differ from V type ATPase.

3. Answer any question of the following. 1×8=8
 - a.
 - i). Illustrate MAP kinase pathway.
 - ii). What do you mean by signal transduction pathway?
 - iii). What are the components of cell membranes. 4+2+2
 - b.
 - i). Name two cancer causing gene or Protooncogenes.
 - ii). What is Gap junction?
 - iii). If Wee Kinase & cdc 25 become non functional what will be the outcome? 2+2+4

GROUP-B
(BIOPHYSICS)

4. Answer any two questions of the following. 2×2=4
- a. What is Fick's law?
 - b. Give an example of larger radioactive nucleus showing alpha decay.
 - c. What lyophilic and lyophobic colloids?
 - d. Define isoelectric point.
5. Answer any two questions of the following. 2×4=8
- a. What is nanoparticle? Elaborate the application of nanotechnology in biological science. 2+2
 - b. Define Donnan membrane equilibrium. Describe fluid Mosaic model. 2+2
 - c. Write down the Van't Hoff's laws of osmotic pressure. What is Brownian movement? 3 +1
 - d. Demarcate the properties of β and γ rays. 2 +
6. Answer any one question from the following. 1×8=8
- a. i). State the laws of thermodynamics. Differentiate entropy and enthalpy. if $\Delta G = -ve$? What will be the state of reaction ?
 - ii). Write down the properties of colloid. 3+2+1+2
 - b. i). What is pH? Describe the Handerson- Hasselbalch equation. What are physiological buffers?
 - ii). Write a short note on hollow fibre dialysis. 1+3+2+2

