

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

B.A./B.Sc. FIRST SEMESTER EXAMINATION, DECEMBER 2015

FIRST YEAR [BATCH 2014-17]

ZOOLOGY (General)

Date : 19/12/2015

Time : 11 am – 1 pm

Paper : I

Full Marks : 50

[Use a separate Answer Book for each group]

Group – A

1. Answer **any five** questions of the following : (5 × 2)
 - a) Define cnidarians with examples.
 - b) State two major differences between haemoglobin and haemocyanin.
 - c) What is apical complex?
 - d) In which class does *Sycon* belong? Mention two major diagnostic features of that class. (1 + 1)
 - e) State the difference between connective and commissure.
 - f) *Plasmodium* comes under the phylum _____ and *Paramoecium* belongs to the phylum _____. (1 + 1)
 - g) Define hydrostatic skeleton.
 - h) "A cockroach would not die if its head is immersed under water" – Explain.
2. Answer **any two** questions of the following : (2 × 2½)
 - a) State differences between proto and meta nephridia.
 - b) What is madreporite? State its function. (1 + 1½)
 - c) Distinguish between ciliary and flagellary movements.
 - d) Define Receptor Mediated Endocytosis. (RME)
 - e) Mention the Phylum which accommodates the corals. Explain with reason. (1 + 1½)
3. Answer **any two** questions of the following : (2 × 5)
 - a) What is circulation? Write differences between open and closed circulatory systems. (2 + 3)
 - b) Define blepharoplasts. State the functions of dynein arm in a microtubule. Describe effective and recovery strokes. (1 + 2 + 2)
 - c) Describe the process phagocytosis in *Amoeba* briefly with a diagram.
 - d) Describe the typical structures of nephridia of earthworm with proper illustration. (3½ + 1½)
 - e) Describe how sliding interaction between actin and myosin filaments facilitates amoeboid movement.

Group – B

4. Answer **any five** questions of the following : (5 × 2)
 - a) What is GERL system?
 - b) Mention two important differences between B-DNA & Z-DNA.

- c) State the function of DnaG during the replication of DNA. How many histone proteins are required to form a nucleosome? (1 + 1)
- d) What is Gynandromorph?
- e) State the functions of A-Site and P-Site of ribosome.
- f) What is meant by tandem duplication?
- g) What are pericentric and paracentric inversions?
- h) What is Restriction endonuclease? Site one example. (1 + 1)
5. Answer **any two** questions of the following : (2 × 2½)
- a) What are the functional differences between G₁ & S₁ Cyclins?
- b) Classify chromosomes based on the position of Centromere with suitable illustrations. (1½ + 1)
- c) What are heterophagosomes and autophagosomes?
- d) What is Barr body? Mention the number of Barr body in Klinefelter's Syndrome (KS) affected individual. (1½ + 1)
- e) What are cis and trans positions? Define plasmid and episome. (1 + 1½)
6. Answer **any two** questions of the following : (2 × 5)
- a) Describe the 'Fluid Mosaic Model' of the plasma membrane. Explain different functions of plasma membrane on the basis of this model. (3 + 2)
- b) What do you mean by 'Leading strand' and 'Lagging strand' of DNA? (3 + 2)
- c) What is Genic Balance Theory? State briefly the regulatory mechanism of sex determination in human with a suitable flow chart. (2 + 3)
- d) How did Hershey and Chase prove that bacteriophage T₂ contains DNA as its genetic material? (Show in a schematic flow chart)
- e) State the important features in the structure of t RNA.

_____ × _____