

# RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

B.A./B.Sc. THIRD SEMESTER EXAMINATION, DECEMBER 2017

SECOND YEAR [BATCH 2016-19]

ZOOLOGY [General]

Paper : III

Date : 19/12/2017

Time : 11 am – 1 pm

Full Marks : 50

[Use a separate Answer Book for each Group]

## Group – A

1. Answer **any five** questions : [5×2]
  - a) What is  $\beta$ -ecdysone? State its function. [1+1]
  - b) What is Erythropenia? How is it caused? [1+1]
  - c) Compare between a Co-factor and a Holo enzyme. [1+1]
  - d) Define 'Black foot disease'. Mention its diagnostic features. [1+1]
  - e) What are plasmalogens and gangliosides? [1+1]
  - f) What is reducing sugar? Give examples. [1+1]
  - g) State the role of  $p^H$  in enzyme activity. [2]
  - h) What are "Langerhans cells"? [2]
2. Answer **any two** questions : [2×2·5]
  - a) Enumerate the role of  $FUT_1$  gene in human blood group determination.
  - b) Briefly explain the osmoregulation process in anadromous fishes.
  - c) "Mostly the transition metals are found in metalloproteins" – why?
  - d) Define action potential. Name two neurotransmitters. [1·5+1]
  - e) Point out the significance of Gluconeogenesis.
3. Answer **any two** questions : [2×5]
  - a) What is Michaelis-Menten constant? If  $V = V_{max}(S) / K_m + S$ , then prove that  $K_m = S$ . [2+3]
  - b) What is fibrinolysis? Describe the process of fibrinolysis with a suitable flowchart. [1+4]
  - c) What is metamorphosis? Give a brief account of different hormones involved in insect metamorphosis. [1+4]
  - d) With a suitable diagrammatic illustration describe the histological features of a typical thyroid follicle. [5]
  - e) What is depolarization? Explain the underlying molecular mechanism leading to depolarization. [2+3]

## Group – B

4. Answer **any five** questions : [5×2]
  - a) Distinguish between allogenic and autogenic successions.
  - b) What do you mean by "Survivorship curve"?
  - c) What are the limitations of an age specific life table?
  - d) Define ecotone with a suitable example.
  - e) Name the strategies opted for conservation.
  - f) Name two schedule I mammals. [1+1]
  - g) What is genetic diversity? [2]
  - h) What do you mean by 'age distribution' in a population? [2]

5. Answer **any two** questions : [2×2·5]
- a) Define secondary productivity. State two special features of 'Universal Model of energy flow'. [1+1·5]
  - b) State few important reasons of air pollution. [2·5]
  - c) Describe the dose effect curve of two chemicals with the same LD<sub>50</sub>. [2·5]
  - d) Write a short note on 'Bee dance'.
  - e) Why regions with high gamma diversity have better ability to buffer adverse environmental conditions? [1·5+1]
6. Answer **any two** questions : [2×5]
- a) What are source and sink populations? State the major drawbacks of a 'Pyramid of Biomass'. Distinguish between poikilotherms & homiotherms. [2+2+1]
  - b) State the importance of decomposers in an ecosystem. Justify— "Ecological niche is n-dimensional hypervolume". [2+3]
  - c) Why the 'Western Ghats' is considered as hotspot? Mention the main factors responsible for its degradation. [3+2]
  - d) Write a short note on biosphere reserve. How does it differ from a wild life sanctuary? [3+2]
  - e) State the important features of EIA. What is an indicator species? Give examples. [3+1+1]

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