

Total pages: 2

PG CBCS
M.Sc. Semester-I Examination, 2020
ZOOLOGY
 PAPER: ZOO 103

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

The figures in the right-hand margin indicate full marks. Candidates are required to give their answers in their own words as far as practicable.

Group-103.1**(Marks: 20)****(Immunology)****1. Answer two questions of the following:****2x10**

- a. Briefly describe the alternative pathway of complement system. What are advantages of ELISA over RIA? What are haptens? What is PALS? 5+2+2+1
- b. MHC is one of the most polymorphic genes.
- i. Where is most of the polymorphic amino acid residues located in MHC molecules? What is the significance of this location? 3
- ii. How is MHC polymorphism thought to be generated? 2
- iii. Using schematic show how MHCI molecule process antigens and present to T cells. 5
- c. Distinguish between MHC class I and MHC class II molecule with suitable diagram. Write the functional significance of HSC, Psoriasin and Thymosin. 7+3
- d. Differentiate immunogen from antigen. What are adjuvants? Give example. Mention its mode of action. Write the function of secondary lymphoid organ. 3+2+4+1
- e. Write notes on (any two) 5+5
- i. ADCC
- ii. Southern blotting hybridization
- iii. Phagocytosis
- iv. IgA and IgM

Group-103.2**(Marks: 20)****(Methods in Biology)****2. Answer two questions of the following:****2x10**

- a. What is the basic principle of Flow Cytometry? What are the different properties of a typical YAC vector? Briefly explain the construction of an oil eating bug. 3+3+4

P.T.O.

(2)

- b. What is bioremediation? Explain different types of *in-situ* bioremediation processes. What is 2D gel electrophoresis? What are the different properties of an expression vector?
2+3+2+3
- c. State the principle and applications of affinity chromatography. What do you mean by planar and column chromatography? What is mobile phase in Gas chromatography?
(4+3)+2+1
- d. Write the principle of SDS PAGE. Write the composition of loading dye in Agarose gel electrophoresis. State the application of SDS PAGE
5+2+3
- e. What is the basic principle of PCR? What do mean by ultracentrifugation? Briefly explain the bioremediation of xenobiotic components. What are properties of a cosmid vector?
3+2+3+2
