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M.Sc. RNLK-/Z-103(Gr.A)/21

2021

Zoology

[First Semester]

Paper - Z-103 (Gr. A)

(Immunology)

Full Marks : 40

Time : 2 hours

The figures in the right-hand margin indicate marks.

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

Illustrate the answers wherever necessary.

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

- a) What are epitope and paratope?
- b) Which Ig is present in tear? Write its other important functions.
- c) Mention two properties of immunogenic substances.
- d) Mention one advantage and one disadvantage of RIA.

(Turn Over)

(2)

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

- a) Write down the difference between humoral and cell-mediated immune response.
- b) Describe with proper illustration – the classical pathway of complement system.
- c) State the comparison of the co-stimulatory proteins required to activate a helper T-Cell and a B-Cell in response to the same foreign protein.
- d) Write a note on – ELISA.

3. Answer any one from the following questions. 8×1=8

- a) Write down the difference between MHC I and MHC II with suitable diagram. Do you think MHC and HLA genes are same? 7+1
- b) Describe the structure of antibody with description of
 - (i) F_{ab} & F_c (ii) CDR (iii) Hinge Region
 - (iv) action of papain on Ig. 4+4

Total Pages – 2

M.Sc. RNLK-/103(B)/21

2021
Zoology
[First Semester]
Paper - 103(B)
(Methods in Biology)

Time : 2 hours

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

Illustrate the answers wherever necessary.

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

- a) What do you mean by Phytoremediation? Mention in types.
- b) What is VNTR? Give example.
- c) What is stationary phase and mobile phase in chromatography?
- d) Write the composition and function of loading dye in gel electrophoresis.

(Turn Over)

(2)

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

- a) Write the principle of SDS-PAGE. State the importance of T_m value in PCR.
- b) How will you purify m-RNA from a mixture of RNA through chromatography?
- c) State the optimum physicochemical parameters for biodegradation. What is oil eating bug?
- d) What are the features of Yeast Artificial Chromosome (YAC).

6. Answer any one of the following : 8×1=8

- a) What is Biotechnology? Comment on the scopes of biotechnology in environmental science. What is Bioremediation? Discuss in brief the in-situ and ex-situ bioremediation process. Write the applications of Agarose gel electrophoresis. 3+4+1
- b) State the principle and advantages of Fourier Transform Infrared (FT-IR) spectrometry. Write the principle and application of Affinity chromatography.

4+4