

B.Sc. (CBCS Pattern) Semester-IV
011B - Biotechnology Paper-II - Immunology and biostatistics

P. Pages : 2

Time : Three Hours



GUG/W/24/11995

Max. Marks : 50

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- Notes : 1. All questions carry equal marks.
2. Draw neat labelled diagrams wherever necessary.

1. Explain immunoglobulin and their classes in details. **10**

OR

- a) Write a short note on Lymphocytes. **2½**
- b) Write a short note on Lymph node. **2½**
- c) Explain the historical background of immunology. **2½**
- d) Write a short note on concept of immunity. **2½**

2. Explain the concept of cell mediated immunity in details. **10**

OR

- a) Write a short note on MHC I complex. **2½**
- b) Write a short note on concept of autoimmunity. **2½**
- c) Give the principle of vaccination in short. **2½**
- d) Write a short note on humoral immunity. **2½**

3. Explain the concept of hybridoma technology. **10**

OR

- a) Explain the complement fixation reaction. **2½**
- b) Explain the radial immunodiffusion. **2½**
- c) Explain the precipitation reaction. **2½**
- d) What is ELISA? Explain in short. **2½**

4. Explain different types of measures of central tendency. **10**

OR

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| a) Write a short note on chi square test. | 2½ |
| b) Write a short note on frequency distribution table. | 2½ |
| c) Explain the dendrogram. | 2½ |
| d) Write the short note on standard error. | 2½ |

5. Attempt any ten.

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| a) Which immunoglobulin is pentameric? | 1 |
| b) Which immunoglobulin crosses placenta? | 1 |
| c) Name different types of T cells. | 1 |
| d) Define innate immunity. | 1 |
| e) What does MHC stands for? | 1 |
| f) Who discovered polio vaccine. | 1 |
| g) What does VDRL stands for? | 1 |
| h) What is antibody? | 1 |
| i) Name any two antigen antibody reactions. | 1 |
| j) Define range. | 1 |
| k) What is regression? | 1 |
| l) What is standard deviation? | 1 |
