

B.Sc. CBCS Pattern Semester-IV
011B - Biotechnology Paper-II : Immunology and Biostatistics

P. Pages : 2

Time : Three Hours



GUG/W/23/11995

Max. Marks : 50

Notes : 1. All questions are compulsory and carries equal marks.

1. Define immunoglobulins explain the structure and function of immunoglobulin and their classes. **10**

OR

- a) Write a short note on secondary lymphoid organs. **2½**
- b) Write in brief about Cells of immunity. **2½**
- c) Explain classification of immunity. **2½**
- d) Write a note on Lymphocytes. **2½**
2. Explain in detail cell mediated immunity. **10**

OR

Write a short note on-

- a) Humoral immunity. **2½**
- b) Hypersensitivity. **2½**
- c) Autoimmunity. **2½**
- d) Complement system. **2½**
3. Write about production of monoclonal antibodies by hybridoma technology. **10**

OR

- a) Write a short note on ELISA. **2½**
- b) Write a note on agglutination. **2½**
- c) Explain in brief about Widal test. **2½**
- d) Write a note on Complement fixation. **2½**
4. What is Sampling? Describe the different sampling techniques. **10**

OR

Write short note on-

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|----------------------------------|----|
| a) Measures of central tendency. | 2½ |
| b) Standard deviation. | 2½ |
| c) Regression. | 2½ |
| d) Chi-square test. | 2½ |

5. Answer any ten.

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| a) Define immunity. | 1 |
| b) Define Lymphocytes. | 1 |
| c) Which immunoglobulin is found in secretion? | 1 |
| d) Give two example of autoimmune disease. | 1 |
| e) Write down full form of MHC. | 1 |
| f) Define Attenuated vaccine. | 1 |
| g) Write down full form of ELISA. | 1 |
| h) Define precipitation. | 1 |
| i) Write down full form of HAT medium. | 1 |
| j) Syphilis is caused by which bacteria? | 1 |
| k) Define Mode. | 1 |
| l) Define Range. | 1 |
