

**PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)**

**BSc DEGREE EXAMINATION DECEMBER 2017
(Third Semester)**

Branch - **BIOTECHNOLOGY**

IMMUNOBIOLOGY

Time : Three Hours

Maximum : 75 Marks

SECTION-A (20 Marks)

Answer ALL questions

ALL questions carry EQUAL marks . (1.0x2 = 20)

- 1 Is it possible to make antibodies against penicillin? If yes indicate how.
- 2 What are opsonins? Define opsonization.
- 3 Distinguish antigenicity and immunogenicity.
- 4 Distinguish allotypic, idiotypic and isotypic determinants.
- 5 T4 cells fine tune the immune response - Justify this statement with 2 valid points.
- 6 What are superantigens? Give examples.
- 7 Mantoux reaction.
- 8 Mention the advantages of DNA vaccines.
- 9 How is immunoperoxidase staining used in detection?
- 10 Write the principle of a technique which can define the quality of a given antigen / antibody.

SECTION - B (25 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 5 = 25)

- 11 a Neutrophils and NK cells are first line defense mechanisms in bacterial and viral infections respectively. Justify this statement and highlight the mechanism.
- OR
b Haptense are antigenic but not immunogenic. Critically evaluate the features of haptens.
- 12 a Tabulate the biological properties of immunoglobulin isotypes.
OR
b Sketch and explain how viral antigens are processed and presented.
- 13 a The first postulate of the clonal selection hypothesis states that: "Each lymphocyte bears a single type of receptor which a unique specificity". Briefly describe the molecular mechanisms that generate T lymphocytes with unique specificities.
OR
b Briefly outline the development of B lymphocytes in peripheral lymphoid organs.
- 14 a What are abzymes and humanized antibodies?
OR
b Compare the properties of live and attenuated vaccine with examples for each.
- 15 a Sketch and explain competitive and indirect ELISA.
OR
b How will you detect a specific antibody from a mixture of proteins?

Cont....

SECTION - C (30 Marks)

Answer any **THREE** Questions

ALL Questions Carry **EQUAL** Marks (3x10³⁰)

- 16 Enumerate the properties of innate and acquired immunity. Justify inflammation and macrophages as a bridge between innate and acquired responses.
- 17 Complement proteins help in clearance of the antigen. Explain the mechanisms.
- 18 Compare and contrast the mechanism of central and peripheral tolerance.
- 19 Discuss cellular hypersensitivity reactions with examples.
- 20 How are immunoglobulins isolated and characterized?

Z-Z-Z

END