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PGIVS 1585 A-18
M.Sc. IVth Semester Examination
MICROBIOLOGY
(Immunology & Immunotechnology)
Paper : 4.2

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

Answer all Sections.

SECTION - A

1. Write brief note on any **TEN** of the following: **(10×2=20)**
- a) Hematopoieses
 - b) Oral Vaccines
 - c) ADCC
 - d) Frossman antigen
 - e) Atopy
 - f) Natural Killer cells.
 - g) Eosinophills
 - h) Allograft
 - i) Memory cells
 - j) Serum sickness
 - k) Fc receptor
 - l) Alzheimer

SECTION - B

Write note on any **SIX** of the following: **(6×5=30)**

2. Immune deficiency syndrome

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(1)

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3. Cytokines
4. MHC Molecules
5. Subsets of T cells
6. Alternate pathway
7. Immunoblotting
8. Delayed hypersensitivity.

SECTION - C

Answer any **THREE** of the following

(3×10=30)

9. Explain in detail the types and production of vaccines with suitable examples.
10. Discuss the various types of lymphoid organs.
11. Give a detailed account of historical development of immunology.
12. Describe the production and applications of Monoclonal Antibodies.

PGIVS 1585 A-18
M.Sc. IVth Semester Examination
MICROBIOLOGY
(Fermentation Technology & Bioprocess Engineering)
Paper : HC-4.1

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

Answer all Sections.

Section - A

1. Write brief note on any TEN of the following:

(10×2=20)

- a) Koji fermentation
- b) Submerged fermentation
- c) Precursor
- d) Antifoaming agents
- e) Protoplast fusion
- f) Column fermentor
- g) Acetobacter aceti
- h) Synchronous growth
- i) Grant
- j) Antitumour agents
- k) Process Economics
- l) Automatic control panel.

Section - B

Attempt ALL questions .

(6×5=30)

2. Sterilization of fermentation media.
3. Flow chart for vinegar production .

4. Basic components of Bioprocessing Engineering.
5. Kinetic model for microbial growth
6. Carbon sources for fermentation media
7. Fermentation Industries in India.

Section - C

Answer any **THREE** of the following

(3×10=30)

9. Discuss the production of Alcohol.
10. Write in detail the design and function of typical fermentor.
11. Discuss the various methods of down stream processing.
12. Give an account of IPR and procedure involved in patent.

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