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PGIIS-836 A-21
M.Sc. III Semester (Theory) Degree Examination
MICROBIOLOGY
Recombinant DNA Technology
Paper : HC - 3.1

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

Answer all sections.

SECTION - A

Write a brief note on any **Ten** of the following.

(10×2=20)

1. a) Homopolymer tailing.
- b) HACs.
- c) Isopycnic separation.
- d) Primers
- e) Lipofection
- f) Klenopolymerase
- g) Hybridization
- h) Zonal centrifugation.
- i) Artificial plasmid vectors
- j) Chromosome walking
- k) Insertion vectors
- l) Nick translation

SECTION - B

Write short notes on any **Five** of the following.

(5×6=30)

2. Pulse field electrophoresis.
3. Ligation with RES.
4. Artificial plasmid vectors.
5. Radioactive and nonradioactive labelling.

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6. Restriction endonuclease.
7. Maxam and Gilbert method.
8. DNA - Protein interactions.

SECTION - C

Answer any **Three** of the following.

(3×10=30)

9. Write a detailed note on nucleic acid hybridization and their applications.
 10. Explain the principle, types and applications of DNA micro array.
 11. Describe the process of cDNA synthesis.
 12. Discuss the various applications of Recombinant DNA Technology.
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PGIIS-837 A-21
M.Sc. III Semester Degree Examination
MICROBIOLOGY
Immunology and Immunotechnology
Paper : HC 3.2

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

Answer **All** sections.

SECTION - A

I. Write a brief note on any **Ten of the following. (10×2=20)**

1. a. Variolation.
- b. Acquired immunity.
- c. Hematopoiesis.
- d. T - cell receptors.
- e. Epitope.
- f. Immuno Blotting.
- g. Cytokines.
- h. Immunomodulators.
- i. Expand HIV and AIDS.
- j. Vaccine.

SECTION - B

II. Write short notes on any **Six of the following. (6×5=30)**

2. Contributions of Edward Jenner.
3. Structure of Lymphoid Organs.
4. Genetics of MHC Molecules.

5. Structure and biological function of IgM antibody.
6. ELISA.
7. Severe combined immunodeficiency syndrome.
8. Tissue transplantation.

SECTION - C

III. Answer any **Three** of the following.

(3×10=30)

9. Explain the Origin, development, maturation of B - cells.
 10. Explain in detail production and applications of Monoclonal antibodies.
 11. Give a detailed account of Differentiation and formation of functional T cells.
 12. Explain the development of Vaccines and present status of COVID Vaccine.
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PGIIS-840 A-21
M.Sc. III Semester Degree Examination
MICROBIOLOGY
Microbes And Environment
Paper : OET 3.4

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

Answer All Sections.

SECTION - A

Write brief notes on any Ten of the following:

(10×2=20)

1. a) Geothermal energy.
- b) Hydrosphere.
- c) Ecological niche.
- d) Root exudates.
- e) Extremophiles.
- f) Acid rain.
- g) Gasoline.
- h) Primary consumers.
- i) Methnogenesis.
- j) Positive interactions.
- k) Kyoto protocol.
- l) Omnivorous.

SECTION - B

Write short notes on any Six of the following:

(6×5=30)

2. Hydrological cycle (water cycle)
3. Pyramid of food chain in terrestrial ecosystem.
4. Ethanol production.
5. Leg hemoglobin synthesis.

6. Flow of energy in aquatic ecosystem.
7. Microbes (biofuel) as alternate source of energy.
8. Nitrogen fixing bacteria in plants.

SECTION - C

Answer any Three of the following:

(3×10=30)

9. What are ecological pyramids? Explain various types with suitable examples.
 10. Describe how atmospheric Moisture control the hydrological cycle.
 11. Give a brief account on Global warming and its consequence on human health?
 12. How microbes are termed as early colonizers on earth? Explain the evolution of all forms of life on earth.
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PGIIS-839 B-19
M.Sc. III Semester Degree Examination
MICROBIOLOGY
Food and Dairy Microbiology(soft core)
Paper : 3.3 SC

Time : 3 Hours

Maximum Marks : 80

SECTION-A

1. Write brief notes on any **Ten** of the following : (10×2=20)
- a. Radurization
 - b. High meat
 - c. Maillard reactions of food
 - d. Delay of self decomposition.
 - e. Low acid foods
 - f. Flash pasteurization
 - g. GRAS
 - h. Food intoxication
 - i. Wood smoke
 - j. Condensed milk
 - k. Sour or acid flavor of milk
 - l. Bacterial ropiness

SECTION - B

Write short notes on any **Six** of the following : (6×5=30)

2. Drying of egg and egg products.
3. Evidences of spoilage of fish.
4. Gastroenteritis and conditions necessary for an outbreak.
5. Packaging materials and their sanitation.
6. Preparation of acidophilus milk.
7. Contamination of food during handling and processing.
8. Effect of low temperature on microorganisms.

SECTION - C

Answer any **Three** of the following :

(3×10=30)

9. Discuss the contamination, preservation and spoilage of milk and milk products.
 10. Write a detailed account on food additives.
 11. Discuss the food as substrate for microorganisms.
 12. Write a detailed account on general principles of food spoilage.
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