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**PGIIS-N-1568 B-17**  
**M.Sc. III Semester Degree Examination**  
**MICROBIOLOGY**  
**(Recombinant DNA Technology)**  
**Paper : HC 3.1**  
**(New)**

Time : 3 Hours

Maximum Marks : 80

**Instructions to Candidates :**

*Answer ALL sections.*

**SECTION - A**

1. Write brief notes on any **TEN** of the following. **(10×2=20)**
- a) Ti plasmid
  - b) Palindromic sequence
  - c) Chromosome walking
  - d) Klenow Fragments
  - e) C-DNA
  - f) Northern blotting
  - g) EcoRI
  - h) Bacteriophage Lambda
  - i) T-4 DNA ligase
  - j) Radioactive labeling
  - k) Direct sequencing
  - l) Transfection

**SECTION - B**

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

**(6×5=30)**

2. Density gradient sedimentation.
3. Application of rDNA technology.

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4. Bacteriophages as host for rDNA technology.
5. Type II restriction endonucleases.
6. Cosmid Vectors.
7. RFLP.
8. Solid hybridization.

### SECTION - C

Answer any **THREE** of the following.

**(3×10=30)**

9. Describe the constructor and screening Genomic Libraries.
10. Explain the principle and methodology of DNA sequencing.
11. Explain in details on principle and application of PCR.
12. Write the different types of DNA microarrays and explain the methods for the production and development of DNA microarrays.



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**PGIIS-O-1568 B-17**  
**M.Sc. III Semester Degree Examination**  
**MICROBIOLOGY**  
**(Molecular Biology and Genetic Engineering)**  
**Paper : 3.1 HC**  
**(Old)**

Time : 3 Hours

Maximum Marks : 80

**Instructions to Candidates :**

*Answer ALL sections.*

**SECTION - A**

1. Write brief notes on any **TEN** of the following. (10×2=20)
- a) Characteristics of a good vector
  - b) Restriction mapping
  - c) Linkers
  - d) Nucleotide kinase
  - e) Ti-plasmids
  - f) EcoRI
  - g) Palindromic sequence
  - h) Primer
  - i) RNAi
  - j) Liquid hybridization
  - k) Zonal centrifugation
  - l) cDNA

**SECTION - B**

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

(6×5=30)

2. Chemical synthesis of DNA.
3. pBR 322.

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4. Molecular markers.
5. Chain termination method for DNA sequencing.
6. Cosmids.
7. RAPD.
8. Type III Restriction endonucleases.

**SECTION - C**

Answer any **THREE** of the following.

**(3×10=30)**

9. Explain the different DNA repair mechanisms.
10. Write an account on cloning vectors.
11. Write the principle and application of PCR.
12. What is the significance of various enzymes in r-DNA technology.



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**PGIIS-N-1569 B-17**  
**M.Sc. III Semester Degree Examination**  
**MICROBIOLOGY**  
**(Medical Microbiology and Diagnostics)**  
**Paper : 3.2 HC**  
**(New)**

Time : 3 Hours

Maximum Marks : 80

**Instructions to Candidates :**

*Answer ALL sections.*

**SECTION -A**

1. Write brief notes on any **TEN** of the following. **(10×2=20)**
- a) Semple vaccine for rabies
  - b) Lymphadenopathy
  - c) Convalescent carrier
  - d) Portals of entry of pathogens in Human
  - e) EDR-TB
  - f) *Bordetella pertussis*
  - g) PPLO
  - h) Giardiasis
  - i) Tinea capitis
  - j) Snyder's test for dental caries
  - k) Toxoplasmosis
  - l) SARS

**SECTION - B**

Write notes on any **SIX** of the following.

**(6×5=30)**

2. Anatomy of respiratory tract.
3. Normal flora of large intestine.

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4. Factors influencing the pathogenesis.
5. Causative agents and diagnosis of deep mycoses.
6. Chlamydia.
7. Amoebiasis.
8. Diagnostics for CNS infections.

#### SECTION - C

Answer any **THREE** of the following.

**(3×10=30)**

9. Describe the transmission, pathogenesis, symptoms, and diagnosis of disease caused by *Mycobacterium tuberculosis*.
10. Give an account on collection of samples and direct and indirect diagnostic tests for STD.
11. Discuss in detail on antibiogram and antibiotic policies and guidelines.
12. Write in detail on pathogenicity, Symptoms, diagnosis and preventive measures of herpes viruses.





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**PGIIS-N-1570 B-17**  
**M.Sc. III Semester Degree Examination**  
**MICROBIOLOGY**  
**(Food and Dairy Microbiology)**  
**Paper : SC-3.3**  
**(New)**

Time : 3 Hours

Maximum Marks : 80

**Instructions to Candidates :**

*Answer ALL sections.*

**SECTION - A**

1. Write brief notes on any **TEN** of the following. **(10×2=20)**
- a) Blast freezing
  - b) Thermal death time
  - c) Non perishable foods
  - d) Intermediate moisture foods
  - e) Food poisoning
  - f) HACCP
  - g) Chalky bread
  - h) GMP
  - i) Putrefaction
  - j) Chilling
  - k) Wood smoke
  - l) Drip or bleeding of meat

**SECTION - B**

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

**(6×5=30)**

2. Contamination of food by sewage.
3. Cabinet air drying method.

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4. Nitrogenous chemical changes during spoilage.
5. Food parks.
6. Preparation of yogurt.
7. Biological methods of food preservation.
8. Canning of food.

### SECTION - C

Answer any **THREE** of the following.

**(3×10=30)**

9. Write a detailed account on contamination, preservation and spoilage of milk and milk products.
10. Describe how food acts as culture medium for the growth of microorganism.
11. Write a detailed account on food additives and chemical preservatives.
12. Explain the contamination, preservation and spoilage of Egg and egg products.





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**PGIIS-O-1570 B-17**  
**M.Sc. III Semester Degree Examination**  
**MICROBIOLOGY**  
**(Immunology and Immuno Techniques)**  
**Paper : 3.3 SC**  
**(Old)**

Time : 3 Hours

Maximum Marks : 80

**Instructions to Candidates :**

*Answer ALL sections.*

**SECTION - A**

1. Write brief notes on any **TEN** of the following. **(10×2=20)**
- a) Basophil
  - b) Adjuvant
  - c) APC
  - d) Cytokines
  - e) Autoimmunity
  - f) Innate immunity
  - g) Attenuation
  - h) HLA typing
  - i) Hapten
  - j) Opsonization
  - k) RIA
  - l) TCR

**SECTION - B**

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

**(6×5=30)**

2. Transplantation Immunology.
3. Mechanism of different types of hypersensitivity.

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4. Activation of B and T cells.
5. Primary and secondary immune response.
6. ELISA.
7. Production of monoclonal antibodies.
8. Activation of complement system.

### SECTION - C

Answer any **THREE** of the following.

**(3×10=30)**

9. Explain the types of vaccines and their immunization schedules.
10. Discuss the molecular approaches for clinical analysis of immune system.
11. Give a detailed account on peripheral lymphoid organs.
12. Describe the structure of antibody and add a note on its biological functions.



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**PGIIS-N-1571 B-17**  
**M.Sc. IIIrd Semester Degree Examination**  
**MICROBIOLOGY**  
**(Microbes and Environment)**  
**Paper : 3.4-OE**  
**(New)**

Time : 3 Hours

Maximum Marks : 80

**Instructions to Candidates :**

*Answer ALL sections.*

**Section - A**

1. Write brief notes on any TEN of the following.

(10×2=20)

- a) Biosphere
- b) Biodegradation
- c) Elnino effect
- d) Trickling filter
- e) Biomagnification
- f) Microbial life on Mars
- g) Metagenomics
- h) Solid waste composting
- i) Phylogeny
- j) Methanogens
- k) Microbial leaching
- l) Characteristics of Biofuel

**Section - B**

Write short notes on any SIX of the following.

(6×5=30)

2. Vermi composting.
3. Green house gases.

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4. Microbial recovery of gold.
5. Microflora of human gut.
6. Positive microbial interaction in plants.
7. Food and energy triangle.
8. Indicators of water pollution.

**Section - C**

Answer any **THREE** of the following.

**(3×10=30)**

9. Discuss the role of microbes in bioremediation of xenobiotic waste.
10. Describe microbial production of Ethanol and its blending with fuel.
11. Discuss the effect of climate change on microbes and environment.
12. Give an account of distribution of microbial diversity and methods to study insitu and exsitu microbial diversity.



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**PGIHS-O-1571 B-17**  
**M.Sc. III Semester Degree Examination**  
**MICROBIOLOGY**  
**(Microbial Technology and Entrepreneurship)**  
**Paper : 3.4 OE**

Time : 3 Hours

Maximum Marks : 80

**Instructions to Candidates :**

*Answer ALL sections.*

**SECTION - A**

1. Write brief notes on any **TEN** of the following. **(10×2=20)**
- a) Curdling of milk
  - b) Composting
  - c) Yogurt
  - d) S C O
  - e) Mushroom cultivation
  - f) Marketing strategies
  - g) Biodegradable polymers
  - h) Legal requirements
  - i) Microbial fuels
  - j) Human resource management
  - k) Vitamins
  - l) Vermicomposting

**SECTION - B**

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

**(6×5=30)**

2. Intellectual Property Rights.
3. Significance of genetically engineered microorganisms.

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**[Contd....**



4. Monoclonal antibodies.
5. Biofertilizers.
6. Hydrogen production.
7. Recovery of precious metal.
8. Self entrepreneurship.

### SECTION - C

Answer any **THREE** of the following.

**(3×10=30)**

9. Discuss the availability utilization and significance of locally available raw materials.
10. Sketch out the government schemes for commercialization of microbial technology.
11. Explain the production of alcohol and alcoholic beverages.
12. Write a detailed account on isolation screening and maintenance of industrially important microbes.

