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PGIIS-1083 A-18
M.Sc. IInd Semester Examination
MICROBIOLOGY
(Environmental Microbiology)
Paper : 2.3 SC

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) Ecological succession.
 - b) Thalassic region.
 - c) MPN.
 - d) Reverse osmosis.
 - e) Green - house gases
 - f) E waste
 - g) Biogas
 - h) Hyperthermophiles.
 - i) Reverse osmosis.
 - j) *Pseudomonas putida*
 - k) Ozone hole

Section - B

(6×5=30)

Write short notes on any **six** of the following :

2. Barophiles and their mechanism of adaption.
3. Radiation hazards and safety measures.
4. Sources of soil pollutants.
5. Handling of biohazards and hospital wastes.
6. Control measures of air pollution.
7. Biodegradation of pesticides.
8. Microbiological indicators of water pollution.

Section - C

(3×10=30)

Answer any **three** of the following :

9. Explain conventional and molecular methods of studying microbial diversity.
10. Discuss in detail the concept, scope and methods of bioremediation.
11. Write a critical account on biological treatment of waste water by fixed biofilm systems.
12. Describe the mechanism and role of microbes in recovery of gold and copper.



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PGIIS-1058 A-18
M.Sc. IInd - Semester Examination
MICROBIOLOGY
(Microbial Genetics & Molecular Biology)
Paper : 2.2 HC

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

Answer all the sections.

SECTION - A

1. Write brief notes on any **TEN** of the following : **(10×2=20)**
- a) SOS repair.
 - b) Plasmid curing.
 - c) Ames test.
 - d) Phenotype mixing.
 - e) Poly - A tail.
 - f) Transposons.
 - g) Overlapping genes.
 - h) Photolyases.
 - i) Reverse transcriptase.
 - j) B - form DNA.
 - k) Cscl - centrifugation
 - l) DNA restriction and modification.

SECTION - B

Write short note on any **SIX** of the following questions :

(6×5=30)

2. Attenuator regulation.
3. Griffith's experiment.
4. Catabolite repression.
5. Chromosome banding techniques.
6. Davis - U - tube experiment.
7. Types of transposable elements.
8. Replicative fork.

SECTION - C

Answer any **THREE** of the following questions.

(3×10=30)

9. Explain the Molecular arrangement of DNA nucleosome with special reference to super coiling.
 10. Write a detailed essay on regulation of gene expression.
 11. Write an essay on translation, Add a note on post translational modifications.
 12. Write a detailed account on types of mutations. Add a note on mutation selection procedures.
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PGIIS-1084 A-18
M.Sc. IInd Semester Examination
MICROBIOLOGY
(Microbial Physiology & Enzymology)
Paper : 2.1 HC

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

Answer ALL the sections.

SECTION - A

L Write brief note on any **TEN** of the following :

(10×2=20)

1. a) Synchronous growth.
- b) Cytochrome a.
- c) Km and Vmax
- d) Haldane & Briggs equation.
- e) Substrate specificity.
- f) Enzyme turnover.
- g) Enzyme stability.
- h) Glycogen phosphorylase.
- i) Competitive inhibition.
- j) Isoenzymes with examples.
- k) Covalent catalysis.
- l) Substrate concentration.

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SECTION - B

- II.** Write note on any **SIX** of the following : **(6×5=30)**
2. Multienzyme complex.
 3. Alcohol fermentation pathway.
 4. Factors influencing enzyme activity.
 5. Creatine Phosphokinase.
 6. Structural elucidation of enzymes.
 7. Applications of stable enzymes.
 8. PSI and PSII with examples.

SECTION - C

- III.** Answer any **THREE** of the following : **(3×10=30)**
9. Discuss on the phases of growth and write the significance of log phase.
 10. Classify the micro organisms based on their Nutritional sources.
 11. What are Allosteric enzymes. Explain their activation by taking examples of Threonine dehydratase & Aspartate transcarbomylase.
 12. Write an essay on Isolation and Purification of microbial enzymes.
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