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**PG3S-420-A-23**  
**M.Sc.III Semester (CBCS) Degree Examination**  
**ENVIRONMENTAL SCIENCE**  
**Environmental Engineering**  
**Paper - HCT- 3.1**

**Time : 3 Hours**

**Maximum Marks : 80**

*Instructions to Candidates:*

1. *Answer all Sections.*
2. *Section - A is compulsory.*

**SECTION-A**

Answer **All** the following.

**(10×2=20)**

1. a) Coagulation.  
b) Groundwater recharge  
c) Environmental engineering.  
d) Name two water treatment processes.  
e) Primary treatment process.  
f) Principle of settling chamber.  
g) Particulate emissions.  
h) Adsorption.  
i) Soil pollutant.  
j) Hazardous wastes.

**SECTION-B**

Answer any **SIX** of the following.

**(6×5=30)**

2. Explain the scope of environmental engineering.
3. Elaborate on water and wastewater standards.
4. What is water hardness? Explain any two methods to treat water hardness.

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5. Brief on water shed management planning and design.
6. Explain the mechanism involved in the aeration water treatment process.
7. Explain the significance of municipal wastewater treatment.
8. Explain electrostatic precipitators.
9. How can soil erosion be controlled? Explain.

### SECTION-C

Answer any **THREE** of the following.

**(3×10=30)**

10. Explain designing and layouts of the water distribution system involved in the efficient water supply.
  11. What are the effects of hazardous metal ions on the environment? Explain its removal its techniques.
  12. What are the major processes of wastewater treatment? Explain.
  13. Briefly explain significance of absorption techniques in controlling air pollution.
  14. Write a note on the conversion of agricultural waste to energy.
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**PG3S-423-A-23**  
**M.Sc.III Semester (CBCS) Degree Examination**  
**ENVIRONMENTAL SCIENCE**  
**Solid Waste Management**  
**Paper -OET- 3.1**

**Time : 3 Hours**

**Maximum Marks : 80**

**Instructions to Candidates:**

1. **Answer all Sections.**
2. **Section - A is compulsory.**

**SECTION-A**

Answer any **TEN** of the following.

**(10×2=20)**

1. a) Non recycleable natural resources.  
b) Ores  
c) Reservoir.  
d) Gutters.  
e) Nutrient deficiency  
f) Saline soils  
g) Oil reserve.  
h) Mineral  
i) Thermal energy  
j) Wind mill

**SECTION-B**

Answer any **Six** of the following.

**(6×5=30)**

2. Discuss natural resources in India.
3. Write a note on integrated water resource management.
4. Explain different methods for soil conservation.

5. Explain the impact of water logging on soil ecosystem.
6. Explain the strategies for mineral exploration.
7. Discuss on recycling of mineral resources.
8. Explain the non conventional energy resources with examples.
9. Discuss the concept of power generation form waste.

### SECTION-C

Answer any **THREE** of the following.

**(3×10=30)**

10. Explain the classification and current status for natural resources.
  11. Discuss the importance of participatory watershed development in rural area.
  12. Explain the vegetative and engineering measures to restore wastelands.
  13. Explain the avenues for exploration of minerals in oceans.
  14. Discuss the concept and energy content in conventional energy resources.
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**PG3S-422-A-23**  
**M.Sc.III Semester Degree Examination**  
**ENVIRONMENTAL SCIENCE**  
**Natural Resources and Conservation**  
**Paper -SCT- 3.2**

Time : 3 Hours

Maximum Marks : 80

*Instructions to Candidates:*

1. *Answer all Sections.*
2. *Section - A is compulsory.*

**SECTION-A**

Answer any **Ten** of the following.

(10×2=20)

1. a) Pyrolysis  
b) Composting  
c) Recycling.  
d) Incineration.  
e) Aerobic digestion.  
f) Waste to wealth  
g) Transportation of Biomedical waste.  
h) Segregation of E-waste  
i) 4 R's concept.  
j) Conversion of waste to wealth.

**SECTION-B**

Answer any **Six** of the following.

(6×5=30)

2. Describe the kinds of solid waste.
3. Write a note on composition of solid waste.
4. Explain the methods of vermicomposting.

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**PG3S-422-A-23**  
**M.Sc.III Semester Degree Examination**  
**ENVIRONMENTAL SCIENCE**  
**Natural Resources and Conservation**  
**Paper -SCT- 3.2**

Time : 3 Hours

Maximum Marks : 80

*Instructions to Candidates:*

1. *Answer all Sections.*
2. *Section - A is compulsory.*

**SECTION-A**

Answer any **Ten** of the following.

(10×2=20)

1. a) Pyrolysis
- b) Composting
- c) Recycling.
- d) Incineration.
- e) Aerobic digestion.
- f) Waste to wealth
- g) Transportation of Biomedical waste.
- h) Segregation of E-waste
- i) 4 R's concept.
- j) Conversion of waste to wealth.

**SECTION-B**

Answer any **Six** of the following.

(6×5=30)

2. Describe the kinds of solid waste.
3. Write a note on composition of solid waste.
4. Explain the methods of vermicomposting.

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5. Write a note on collection of municipal solid waste.
6. Define the status of plastic waste in India.
7. Explain the advance techniques of biomedical waste.
8. Define the effects of plastic wastes on environment.
9. Explain the sources of radioactive waste.

### SECTION-C

Answer any **Three** of the following.

(3×10=30)

10. Explain the sources - segregation and transportation of municipal solid waste.
  11. Explain the types of radioactive waste and its control and management.
  12. Give a detailed account on source, recycling and disposal methods of E-waste.
  13. Explain the sources, classification and disposal methods of biomedical waste.
  14. Give a detailed about the reuse and recycling of paper and metals.
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**PG3S-421-A-23**  
**M.Sc.III Semester (CBCS) Degree Examination**  
**ENVIRONMENTAL SCIENCE**  
**Environmental Sampling and Statistics**  
**Paper -HCT- 3.2**

**Time : 3 Hours**

**Maximum Marks : 80**

**Instructions to Candidates:**

1. *Answer all Sections.*
2. *Section - A is compulsory.*

**SECTION-A**

Answer **All** the following.

(10×2=20)

1. a) Sedimentation.  
b) DO  
c) RSPM  
d) Primary pollutants  
e) MANOVA  
f) Median  
g) Auger  
h) t-test  
i) Eutrophication  
j) Data interpretation

**SECTION-B**

Answer any **Six** of the following.

(6×5=30)

2. Explain the types of water samples.
3. Describe the following sampling method.
  - a) Impingement.
  - b) Filtration.