

Enrollment No.

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M.TECH (EEM)
I YEAR II SEMESTER EXAMINATION
WATER & WASTE WATER TREATMENT

[Time : 3:00 Hours]

[Max. Marks : 70]

NOTE: - ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS

1. Attempt any TWO of the following:

[2X10=20]

Q1. Describe the principle of sedimentation with a diagram and explain the design of a sedimentation tank with an example.

Q2. Describe the different types of reactors using in waste water treatment plants?

Q3. What is Flocculation process? Mention the difference between coagulation and flocculation. With the help of neat diagram show the process to make the water fit for drinking.

2. Attempt any THREE of the following:

[3X10=30]

Q1. Discuss the different problems arises with the different type of reactors.

Q2. Distinguish clearly between the working of an 'oxidation ditch' and 'oxidation pond'.

Q3. Describe the phenomenon of sources of natural and synthetic colour and their removal.

Q4. Discuss the concept of disinfection of water. Explain various methods for disinfection purpose of water.

3. Attempt any TWO of the following:

[2X10=20]

Q1. What is sludge? Discuss techniques used for Sludge Treatment & Disposal.

Q2. Explain the aerobic and anaerobic process in treatment system.

Q3. What are the importance of waste treatment plant? Explain it.

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M.TECH (EEM)
I YEAR II SEMESTER EXAMINATION
INSTRUMENTATION(SPECTROMRETRY & CHROMATOGRAPHY)

[Max. Marks : 70]**[Time : 3:00 Hours]****NOTE: - ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS****1. Attempt any TWO of the following:****[2X10=20]**

Q1. Define Beer Lambert's Law. Discuss the applications of ultra-violet and infra-red. spectroscopy in analysis of pollutants in environmental samples.

Q2. Provide examples of spectrometry applications in water and air pollution analysis.

Q3. Describe the applications of Atomic Absorption Spectrometry (AAS)

2. Attempt any THREE of the following:**[3X10=30]**

Q1. Describe the different detectors used in water pollution.

Q2. Describe the role of Electrophoresis in pollutant analysis.

Q3. Explain the working principle of Electrical Conductivity Detectors.

Q4. Explain the working of Nuclear Magnetic Resonance (NMR) Spectroscopy.

3. Attempt any TWO of the following:**[2X10=20]**

Q1. Explain in detail the Principle and types of chromatography?

Q2. Provide a case study on the application of FTIR in pollutant analysis.

Q3. Explain Raman effects and microwave spectroscopy?

Printing Pages : 1

28-05-25
Paper Code : - MEEM-203
(A) (SVSU) : 2024-2025/R

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M.TCH (EEM)
I YEAR II SEMESTER EXAMINATION
SOLID & HAZARDOUS WASTE MANAGEMENT

[Time : 3:00 Hours]

[Max. Marks : 70]

NOTE: - ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS

1. Attempt any TWO of the following: [2X10=20]

Q1. Discuss various solid waste processing techniques like shredding, pulverizing, and baling.

Q2. Describe the design and operation of facilities for hazardous waste treatment.

Q3. Define 'municipal solid waste' and explain the necessity of its safe disposal.

2. Attempt any THREE of the following: [3X10=30]

Q1. What are the requirements and technical solution in landfill design and operation?

Q2. Explain the processing of recyclable materials using a case study of Somerset Country materials recycling facility.

Q3. Describe the different methods of waste disposal.

Q4. Discuss the requirements and technical solutions for leachate collection systems.

3. Attempt any TWO of the following: [2X10=20]

Q1. Describe the Biomedical (Management and Handling) Rules, 2008. Explain the term 'colour coding' as is used in relation to the biomedical waste, and how does it help in safe disposal of bio-medical wastes.

Q2. Define the concept of paradigm of recycling, reuse and recovery. Explain various types of reuse. Describe wastewater reclamation and reuse.

Q3. Explain energy recovery systems from waste and describe the potential of energy production from food and animal waste.

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(A) (SVSU) : 2024-2025/R

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M.TECH (EEM)
I YEAR II SEMESTER EXAMINATION
VALUE EDUCATION

[Time : 3:00 Hours]

[Max. Marks : 70]

NOTE: - ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS

1. Attempt any TWO of the following: [2X10=20]

- Q1. Explain the concept of work ethics and its importance in professional life.
Q2. Explain the science of reincarnation and its philosophical implications.
Q3. Why honesty is considered a key value in human interactions?

2. Attempt any THREE of the following: [3X10=30]

- Q1. What is our present attitude towards the body?
What are its consequences?
Q2. How can you differentiate between intention and competence?
How do they affect human relationship?
Q3. Explain the importance of cultivation of values and Sense of duty in the working place.
Q4. Explain the importance of religious tolerance in a diverse society.

3. Attempt any TWO of the following: [2X10=20]

- Q1. Define the Soul and Scientific attitude in personality and behaviour development.
Q2. Define the engineering ethics and doing best for saving nature.
Q3. How do different religions convey the same message of peace and humanity?

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(B) (SVSU) : 2024-2025/REnrollment No.

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M.TECH (EEM)**I YEAR II SEMESTER EXAMINATION****UNIT OPERATIONS & PROCESS****[Time : 3:00 Hours]****[Max. Marks : 70]****NOTE: - ATTEMPT ALL THE QUESTIONS AS PER
GIVEN INSTRUCTIONS****1. Attempt any TWO of the following: [2X10=20]**

Q1. What are the principles of biological growth? Explain suspended and attached growth process.

Q2. Explain the method of coagulation, flocculation for solid removal.

Q3. Define the process of Biological film flow and develop a design equation for maximum influent concentration.

2. Attempt any THREE of the following:[3X10=30]

Q1. Discuss the concept of conversion in wastewater treatment reactors and explain the common problems encountered in non-homogeneous reactors.

Q2. Describe the construction and working of slow sand filters.

Q3. What are the challenges associated with filtration processes?

Q4. Define the whole process of Activated sludge process, their operation performance and control.

3. Attempt any TWO of the following:[2X10=20]

Q 1. What is mass transfer and how is it modeled in gas transfer systems?

Q 2. Describe the membrane processes used for dissolved material removal.

Q3. What is the significance of trickling filters in biological treatment?
