

Name:
Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2021

Program: B.Tech (FSE)

Subject (Course): Environmental Engineering & Management

Course Code: HSFS3010

No. of page/s:3

Semester –VI

Max. Marks : 100

Duration : 3 Hrs

SECTION A

(Attempt all the question, 6*5=30 Marks)

1. Enlist different method used for primary treatment of sewage & hence explain any one method with flow chart. [CO1]
2. Explain sludge thickening & write short notes on gravity thickener. [CO2]
3. Describe the following plume behavior in the following regime. [CO2]
 - a. Fanning
 - b. Fumigation
 - c. Looping
 - d. Lofting & Trapping
4. Explain following: [CO1]
 - Wind rose .
 - Acid Rain
5. Discuss briefly about designing aspect of landfill with standard dimension for solid waste management. [CO2]
6. Explain the working of a Wet scrubber. [CO3]

SECTION B**(Attempt all question, 5*10=50 Marks)**

7. You are appointed as environmental engineer and have been tasked to carry out site investigations for a cement industry. Describe the investigation procedure and discuss the information required to determine the air pollution control equipment to control air pollution and suggest a low budget equipment, which is best for this situation? Justify your choice of pollution control equipment. [CO5]
8. The Dilution Factor P for an unseeded mixture of waste and water is 0.030. The DO of the mixture is initially 9.4.0mg/L, and after five days, it has dropped to 3.6.0mg/L. The reaction rate constant K has been found to be 0.20 days⁻¹. [CO4]
- What is the five-day BOD of the waste?
 - What would be the ultimate carbonaceous BOD?
 - What would be the remaining Oxygen demand after five days?
9. You are appointed as HSE engineer and have been tasked to carry out site investigations for a construction site. Describe the investigation procedure and discuss what information is required for the preparation of sedimentation tank for wastewater treatment plant. [CO5]
10. Discuss briefly about designing aspect of sedimentation tank with standard dimension for wastewater treatment system. [CO4]
11. Explain following with their application. [CO3]
- Primary & Secondary air pollution
 - Line & Areal Air pollution

SECTION-C**(Attempt only one question, 1*20=20 Marks)**

11. Enumerate the following: [CO3]
- Rapid & Comprehensive EIA
 - Vermicomposting & Termigradation
 - Gross primary productivity & Net primary productivity of ecosystem
 - Atmospheric Stability

OR

A large power plant has a 200 m stack with inside diameter of 1.5m. The exit velocity of the stack gas is estimated at 8m/s at the temperature of 130⁰C. Ambient temperature is 23⁰C and the wind at stack height is estimated to be 3m/s. Estimate the total effective height of the stack. If

- The atmosphere is stable with temperature increasing at the rate of 3⁰C/km.
- The temperature is slightly unstable. [CO3]