Name: **Enrolment No:**	UPES UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Online End Semester Examination, January 2021

Program: M. TECH (HSE+DM) **Semester –I**
Subject (Course): Environmental Engineering & Management **Max. Marks : 100**
Course Code: HSFS7001 **Duration : 3 Hr**

SECTION A

Each Question carries 5 Marks

S. No.	**Question**	**CO**
Q 1	Enlist different method used for secondary treatment of sewage & hence explain any one method with flow chart.	**CO1**
Q2	Explain sludge thickening & write short notes on gravity thickener.	**CO1**
Q3	Describe the following plume behavior in the following regime with a neat diagram a. Fanning b. Fumigation c. Looping d. Lofting & Trapping	**CO2**
Q4	Explain following: Great Smog of London. Green House effect	**CO2**
Q5	Discuss briefly about designing aspect of landfill with standard dimension for solid waste management..	**CO2**
Q6	Explain the working of a grit chamber with a neat sketch.	**CO1**

SECTION B

Each Question carries 10 Marks

Q 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**
Q 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	**CO3**

	rate constant K has been found to be 0.20 $days^{-1}$. i. What is the five-day BOD of the waste? ii. What would be the ultimate carbonaceous BOD? iii. What would be the remaining Oxygen demand after five days?	
Q 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**
Q 10	Explain following with their application. i. Wind rose ii. Eutrophication	**CO3**
Q 11	You have been appointed as environmental engineer for an organization and given responsibility to conduct EIA for the new campus (educational organization),Justify your steps to conduct EIA.	**CO5**
	Section C **Each Question carries 20 Marks.**	
Q12	Enumerate the following: a) Rapid & Comprehensive EIA b) Vermicomposting & Termigradation c) Gross primary productivity & Net primary productivity of ecosystem d) 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 130^0C. Ambient temperature is 23^0C and the wind at stack height is estimated to be 3m/s. Estimate the total effective height of the stack. If a) The atmosphere is stable with temperature increasing at the rate of 3^0C/km. b) The temperature is slightly unstable.	**CO4**