


Name:			
Enrolment No:			
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES End Semester Examination, December 2022			
Program: M.Tech (HSE) Subject (Course): Environmental Engineering & Management Course Code: HSFS7001		Semester –I Max. Marks : 100 Duration : 3 Hrs	
SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
Q 1	Explain the Gaussian plume dispersion equation for the gaseous pollutants	4	CO1
Q 2	The 5 day BOD at 30°C of a sewage sample is 120mg/L. Calculate 5 days BOD at 20°C. Assume deoxygenation constant at 20°C, K = 0.1/day.	4	CO3
Q 3	Discuss the significance of public participation in EIA	4	CO1
Q 4	Define Biomedical Waste and enlist colour code for storage of biomedical waste.	4	CO2
Q 5	Discuss briefly about designing aspect of landfill with standard dimension for solid waste management.	4	CO3
SECTION B (4Qx10M= 40 Marks)			
Q 6	With a neat sketch Explain the Plume behaviour for the different atmospheric conditions.	10	CO3
Q 7	Explain the need and methods for softening and disinfection of water.	10	CO4
Q 8	Discuss how you will prepare an EIA for a national highway	10	CO4
Q 9	Explain the principle of composting process.	10	CO3
SECTION-C (2Qx20M=40 Marks)			
Q 10	An Investor wants to put up an Industrial Plant for the manufacture of paper and its derivatives for both local and external market. The Investor intends to establish the paper manufacturing mill in relatively wet and forested upper parts of Dehradun District. A part from the paper mill, the Investor will also provide infrastructure and social amenities in the region. In view of the socio-economic and bio-physical environmental implications that may result due to the proposal, there has been public debate particularly on the loss of habitat/biodiversity and competition for scarce water resources in the region. Assuming your consultancy firm has won a contract to undertake Environmental	20	CO5

	Impact Assessment (EIA) study on this proposed project: Discuss the logical steps in the EIA process that your study team is likely to follow in order to achieve the task assigned to you. Justify the formation of the Interdisciplinary Team for this EIA study.		
Q 11	<p>A large power plant has 250m stack with inside radius 2m exit velocity of the stack gas is estimated at 25m/s at the temperature of 140⁰c. Ambient temperature is 25⁰c and the wind at stack height is estimated to be 5m/s. Estimate the effective height of the stack. If</p> <ol style="list-style-type: none"> 1. The atmosphere is stable with temperature increasing at the rate of 2⁰/km. 2. The temperature is slightly unstable class C <p style="text-align: center;">OR</p> <p>Cleaning up our nation's wastewater is a priority. Currently, India dumps over 150 billion liters of untreated and undertreated wastewater (sewage) into our waterways every year. The Government of India worked with the provinces and engaged municipalities and others to strengthen the country's wastewater treatment and management system. Explain sewage/wastewater treatment plant with the help of flow diagram.</p>	20	CO5