Name: **Enrolment No:**	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2023

Program: B.Tech (FSE) **Semester –VI**
Subject (Course): Environmental Engineering & Management **Max. Marks : 100**
Course Code: HSFS 3010 **Duration : 3 Hrs**

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Explain the factors affecting the selection of the particulate air control devices.	**4**	**CO1**
Q 2	Write a short note on handling and storing of coagulants.	**4**	**CO3**
Q 3	What are the key elements in EIA as per Government of India notification?	**4**	**CO1**
Q 4	Enlist various factors affecting composting process.	**4**	**CO2**
Q 5	Connect climate change with biodiversity loss with example.	**4**	**CO2**
	SECTION B **(4Qx10M= 40 Marks)**		
Q 6	What is inversion? Briefly explain the various types of inversion with the help of neat sketch.	**10**	**CO3**
Q 7	Mention the common impurities in water, which should be taken into account in deciding the portability of the water sample. Describe the essential tests to be performed on such a sample.	**10**	**CO4**
Q 8	Discuss the role of an environmental engineering in context with EIA.	**10**	**CO4**
Q 9	Differentiate Between Hauled Container System & Stationary Container System	**10**	**CO2**
	SECTION-C **(2Qx20M=40 Marks)**		
Q 10	A. The Dilution Factor P for an unseeded mixture of waste and water is 0.030. The DO of the mixture is initially 9 mg/L, and after five days, it has dropped to 4.0mg/L. The reaction 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?	**20**	**CO5**

	iii. What would be the remaining Oxygen demand after five days? b. Find the BOD of a seeded water sample at 25^{O}C and 30^{O}C if it has 300 mg/L ultimate BOD at 20 ^{O}C. Consider dilution factor K=0.33. c. A test bottle containing just seeded dilution water exhibit its DO level drop by 1 mg/L in a 5-day test. A 300 ml BOD bottle filled with 15 ml of wastewater and the rest seeded dilution water experiences a drop of 7.2mg/l in the same time. What would be the 5-day BOD of the wastewater?		
Q 11	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^{0}C. Ambient temperature is 23^{0}C 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^{0}C/km. b) The temperature is slightly unstable. **OR** Enumerate the following with designing aspect and application: a) Cyclone Separator b) Dry & Wet Scrubber c) Atmospheric Stability d) Gravity Settler	**20**	**CO5**