

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2024

B.Tech 7<sup>th</sup> Semester (CE)

COURSE CODE (CREDITS): 18B1WCE732 (3)

MAX. MARKS: 25

COURSE NAME: Environmental Management and Impact Assessment

COURSE INSTRUCTORS: Dr. Rishi Rana Kalia

MAX. TIME: 1 Hour 30 Minutes

**Note:** (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.No	Question	CO	Marks
Q1	Data from an unseeded domestic wastewater BOD tests are: 10 ml of waste in 300 ml bottle, initial DO is 8.9 mg/l, and 5 days DO equal to 6.9 mg/l. Compute the BOD, ultimate BOD, assuming a rate constant of 0.10 per day?	CO-3	4 Marks
Q2	Gas from a thermal pool has an SO <sub>2</sub> content of 96 ppm at 760 mmHg and 20°C. Calculate the concentration of SOX concentration in micrograms per cubic meter and milligram per cubic meter?	CO-2	3 Marks
Q3	Determine the volume of 3 mol of stack gas at 1400 mmHg and 1000°C.	CO-3	3 Marks
Q4	In a water treatment plant, the pH values of incoming and outgoing waters are 7.8 and 5.6 respectively. Assume a linear variation with time; determine the average pH value of water?	CO-5	3 Marks
Q5	Explain the framework of visual impact assessment?	CO-3&4	2 Marks
Q6	Discuss how thermal sources contribute towards water pollution?	CO-3	2 Marks
Q7	Explain in detail the models used for water impact predictions linked with the environmental impact assessment?	CO-2&3	3 Marks
Q8	A treated wastewater is discharged at the rate of 1.5 cubic meters per second into a river of minimum flow of 5 cubic meters per second. The temperature of river flow and wastewater flow may be assumed as 25°C. The BOD removal rate constant K <sub>1</sub> is 0.12/ day (base 10). The BOD <sub>5</sub> at 25°C of the wastewater is 200 mg/l, and that of the river water upstream of the wastewater outfall is 1 mg/l. The efficiency of wastewater treatment is 80%. Evaluate the following: (i) BOD <sub>5</sub> at 25°C if river water receives untreated wastewater, (ii) BOD <sub>5</sub> at 25°C if river water receives treated wastewater, and (iii) Ultimate BOD of the river water after it receives treated wastewater.	CO-2	5 Marks