

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATIONS- 2026

B.Tech-VIII Semester

COURSE CODE (CREDITS): 18B1WCE834 (3)

MAX MARKS: 25

COURSE NAME: Sustainable Development

COURSE INSTRUCTOR: Akash Bhardwaj

MAX. TIME: 1 Hour 30 Min

Note: (a) All questions are compulsory.

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

(c) Use of calculator is allowed

Q.No	Question	CO	Marks
Q1	(a) Which major industrial disaster served as the primary catalyst for the enactment of the Environment Protection Act? Under which Article of the Constitution of India was the Environment Protection Act enacted? Beyond the prevention of pollution, what are the primary objectives of the Water Act, 1974?	3	2
	(b) If a factory is found discharging pollutants beyond the standards prescribed under Section 7 of the Environment Protection Act, what specific penalties could the "Occupier" face under Section 15? Explain Section 3 of Environment Protection Act.		3
Q2	(a) Examine the criteria and functions of environmental laboratories under Environment Protection Act.	3	2
	(b) Draw a flow diagram showing the level of activities in Namami Gange programme. Explain any two in detail		4
Q3	(a) Distinguish between primary and secondary air pollutants, providing two specific examples of each.	2	2
	(b) A new coal-fired thermal power plant is being constructed near a semi-urban area. Propose a comprehensive air pollution control train to handle both particulate matter (PM10 and PM2.5) and gaseous emissions (SOx and NOx). Justify your selection of equipment.		3
Q4	(a) A lake near an agricultural area shows excessive algal growth. Identify the cause and suggest solutions.	2	3
	(b) The measured concentration of PM 2.5 is 60 µg/m³. Calculate the AQI and identify the category.		2
Q5	Two locations, Location A and Location B, have the following PM 2.5 concentrations: • Location A: 85 µg/m³	2	4

	<ul style="list-style-type: none"> • Location B: 140 $\mu\text{g}/\text{m}^3$ <ol style="list-style-type: none"> 1. Calculate the AQI for both locations using the standard AQI formula. 2. Identify the air quality category for each location. 3. Compare the two locations and determine: <ul style="list-style-type: none"> ○ Which location has poorer air quality ○ How much higher it is compared to the other 4. State which location poses a greater health risk and justify your answer. 		
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PM 2.5 AQI Breakpoint Table (India – CPCB)

PM 2.5 Concentration ($\mu\text{g}/\text{m}^3$)	AQI Range
0 – 30	0 – 50
31 – 60	51 – 100
61 – 90	101 – 200
91 – 120	201 – 300
121 – 250	301 – 400
> 250	401 – 500