JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2025

B.Tech-IV Semester (CE)

COURSE CODE (CREDITS): 23B11CE412 (3) MAX. MARKS: 25

COURSE NAME: WATER SUPPLY ENGINEERING

COURSE INSTRUCTOR: NIRAJ SINGH PARIHAR MAX. TIME: 1 Hr 30 Min

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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	Answer the following in brief: a) A potable water source is going to be analysed for its turbidity. Present your views on the most suitable method for the same. b) A water sample has 110 mg/l of $CaCl_2$. Comment on the amount and type of hardness of water in terms of $CaCO_3$. c) The electrical conductivity of a 25 $^{\circ}C$ water sample is 100 µmhos/cm. Find the TDS concentration in water. d) If the initial and final DO of water are 10 mg/l and 2 mg/l respectively and the sample volume is diluted 100 times, estimate the BOD of the water. e) If total hardness and alkalinity of a water sample are 200 mg/l and 260 mg/l as $CaCO_3$ respectively, calculate the amount of carbonate and non-carbonate hardness in water. f) Comment on the statement: "Fluorides are to be kept in optimum concentration in potable water." g) A water source is prone to the sewage discharge contamination from a nearby city. What could be the expected biological characteristics of the water.	CO2	7x1.5
Q2	Design a river intake for the following data: R.L. of river bed=100 m R.L. of lowest water level=102 m R.L. of normal water level=115 m R.L. of high flood level=120 m Population of town=50000 Per capita water demand= 200 l/d Assume and mention other data suitably when required for design.	CO3,4	7
Q3	The monthly runoff data during a lean year for a river are given as 140, 27, 35, 26, 16, 48, 212, 180, 116, 32, 67 and 37 Mm^3. Assuming that the entire inflow water is uniformly distributed as water supply to a town, estimate the storage capacity of the reservoir required.	CO3	5

Q.No	Question	CO	Marks
Q4	Discuss the various forms of nitrogen based organic pollution in water with their method of detection and permissible limit in potable water.	CO5	2.5