JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2025

B.Tech-VI Semester (CE)

COURSE CODE (CREDITS):18B1WCE639 (3)

MAX. MARKS: 15

COURSE NAME: Open Channel Flow and Hydraulic machine

COURSE INSTRUCTORS: Ashish Kumar

MAX. TIME: 1 Hour

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 (a)	How flow in open Channel conduit is different with flow in close conduits? Under which conditions, flow in a closed conduits can be treated as flow in open channels? Explain with suitable example.	CO 1	1
Q1 (b)	Find out the rate of flow of water through a rectangular channel having width 7 m and depth of flow equal to 4 m. The channel is having bed slope as 1in 1500. Take Chezy's coefficient C= 55.	CO1	2.5
Q2	A trapezoidal channel with side slope of 1 to 1 has be designed to carry a maximum discharge 10 m^3/s at a velocity of 2 m/s. Compute the dimensions of the channel to be most economical. Also compute the channel slope for this section and discharge. Take Chezy's coefficient C= 60.	CO1	5
Q3 (a)	Explain the phenomenon of hydraulic jump with neat sketch. What are different application of hydraulic jump?	CO2	2
Q3 (b)	The water is discharged from a dam through a spillway. At the bottom of spillway velocity is 6 m/s and depth of flow is 0.4 m. The width of flow at the bottom of spillway is 8 m. Determine whether a hydraulic jump will exist, and if so find its height and length of hydraulic jump. Also find loss of energy.	CO2	3
Q4	Find the specific energy of flowing water through a rectangular channel of width 5 m and discharge equal to 10 Cumec. Take depth of water as 3 m.	CO2	1.5