

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST-1 EXAMINATION- FEBRUARY 2024

B.Tech VI Semester (Civil)

COURSE CODE (CREDITS): 18B1WCE639 (3)

MAX. MARKS: 15

COURSE NAME: OPEN CHANNEL FLOW AND HYDRAULIC MACHINE

COURSE INSTRUCTOR: NIRAJ SINGH PARIHAR

MAX. TIME: 1HR 30 MIN

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Assume suitable data if required and not provided.

1. Differentiate between characteristic of flow in conduits and in open channels. Also show the flow energy diagram and velocity distribution for both the cases. [4] (CO1)
2. Evaluate the best dimensions of a rectangular brick channel designed to carry a discharge of 5 cumec in uniform flow regime. Take bed slope of 1/1000 and Manning's $n=0.015$. Compare the discharges for half-hexagon and semi-circular cross sections for same area of flow. [6] (CO1)
3. Derive the condition for best depth and central angle for maximum discharge and velocity of flow in a circular conduit having free water surface. [5] (CO1)