

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2026

B.Tech-VIII Semester (CSE/IT/BT/ECE/CE)

COURSE CODE (CREDITS): 18B1WCE831 (3)

MAX. MARKS: 15

COURSE NAME: ADVANCED REINFORCED CONCRETE DESIGN

COURSE INSTRUCTOR: Dr. KAUSHAL 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

(c) Use of calculators, IS Codes are allowed.

Q.No	Question	CO	Marks
Q1	An R.C.C. beam 300 mm x 600 mm is reinforced with 1256 mm ² of Fe 415 steel in both compression and tension zone. The effective cover for tensile steel is 50 mm and that of compression steel is 40mm. Find moment of resistance of the section if M20 concrete is used. Take $m = 13.33$. Also find the uniformly distributed load the beam can carry if the effective span of the beam is 5 m.	1	4
Q2	Explain the yield line theory for slabs and what are its properties? Differentiate between isotropically reinforced and orthotropically reinforced slab.	2	4
Q3	Design the simply supported square slab of side 4 m to support a service load of 4 kN/m ² . Use M20 concrete and Fe 415 steel.	2	4
Q4	Analyse an equilateral triangular Isotropically reinforced simply supported slab subjected to Udl over entire area. Use yield line pattern and by virtual work method.	2	4
Q5	Explain various kinds of joints used in water tanks (with neat sketches)	3	3
Q6	Design a circular water tank with flexible base for a capacity of 100 kl. The depth of water in the tank is 5 m. Use M25 concrete and Fe 415 steel. Take unit weight of water as 9.8 kN/m ³ .	3	6