

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2024

B.Tech-VIII Semester (CE)

COURSE CODE(CREDITS): 18B1WCE831(3)

MAX. MARKS: 25

COURSE NAME: ADVANCED REINFORCED CONCRETE DESIGN

COURSE INSTRUCTORS: Mr. Kaushal Kumar

MAX. TIME: 1 Hour 30 Minutes

Note: (a) All questions are compulsory.

(b) Marks are indicated against each question in square brackets.

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

Q1. Derive an equation to find the collapse load of orthotropically reinforced restrained two way rectangular slab subjected to uniformly distributed load over its entire area using yield line theory [6, CO2]

Q2. Determine the location of the plastic hinges and the collapse load for a one way continuous slab of span 8m if the ultimate moment capacities at the ends are 24kNm and 30kNm. The maximum +ve ultimate moment capacity is 27kNm. [6, CO2]

Q3. A semi circular beam with a radius 4m is simply supported at the ends and is continuous over a column at its middle. The beam carries an udl of 20kN/m inclusive its own weight. Determine S.F, B.M and T.M at salient Points. [6, CO3]

Q4. Deduce generalized equation to determine the bending moment of circular beam loaded uniformly and supported symmetrically at any cross section whose polar coordinate is (R, ϕ) . Beams subtend an angle 2θ at the center in plan. [7, CO3]