JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2024

B.Tech-VIII Semester (CE)

COURSE CODE(CREDITS):18B11CE515(4) MAX. MARKS: 25

COURSE NAME: DESIGN OF CONCRETE STRUCTURES

COURSE INSTRUCTORS:Dr. Tanmay Gupta MAX. TIME: 1 Hour 30 Minutes

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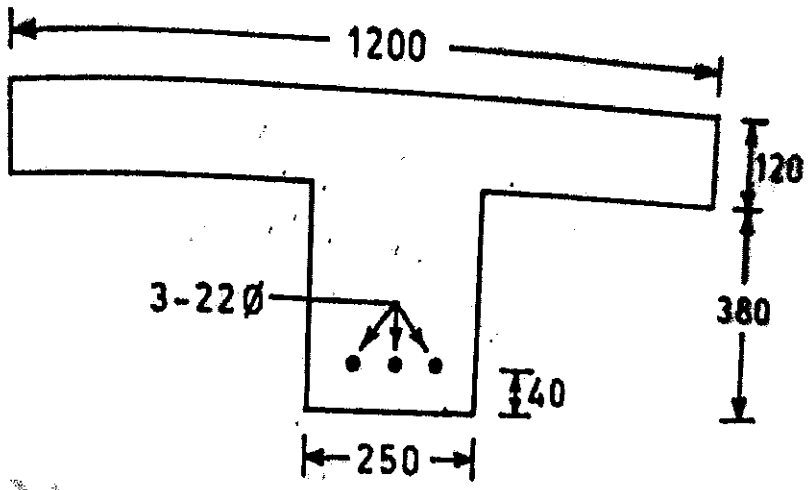
Note: *(a)All questions are compulsory. (b)Marks are indicated against each question in square brackets.(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems. Use of IS 456 is allowed.*

Q.1A simply support beam, is 250mm by 500 mm and has 2-20mm bar going into the support. If the shear force at the center of support is 110 kN at working loads, determine the anchorage length. Assume M20 mix and Fe 415 steel. **[5]**

Q.2Calculate the shear reinforcement for the beam shown below using M20, Fe 415 when the beam is subjected to factored shear force of 200kN. **[6]**



Q.3 On what parameters τ_c of beams without shear reinforcement depends? How do you get τ_c for different grades of concrete? **[4]**

Q.4Explain short- and long-term deflections and the respective influencingfactors of them.**[4]**

Q.5Determine the reinforcement required of a rectangular beamof b = 400 mm, d = 650 mm, D = 700 mm and subjected to factored M_u = 200 kNm, factored T_u = 50 kNm and factored V_u = 100 kN. Use M 20 and Fe 415 for the design. **[6]**