

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- September 2016

B.Tech 5th Semester

COURSE CODE: 10B11CE512

MAX. MARKS: 15

COURSE NAME: Design of Concrete Structures

COURSE CREDITS: 04

MAX. TIME: 1Hr

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Use of IS 456: 2000 is allowed. Assumed data if needed should be clearly mentioned.

Q1. A simply supported beam of clear span 5m has to carry a superimposed load of 45kN/m at service condition. The beam has a bearing of 400mm at each end. Find the reinforcement required if M20/ Fe415 is used (5)

Q2. A beam 200mm×300mm (effective) carries a live load of 7.5kN/m and dead load of 8.5kN/m. Find the steel reinforcement required for the mid span section. The beam span is 5m. Use M20/Fe250. Effective cover to compression steel if required is 40mm (5)

Q3. A T- beam section has following data. Find the ultimate moment of resistance if M20/Fe250 steel is used. (5)

$$B_{eff} = 1000\text{mm} \quad D_f = 120\text{mm} \quad B_w = 250\text{mm} \quad d = 450\text{mm} \quad A_{st} = 4909\text{mm}^2$$