Mr Abhilash Shukla

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- May 2019

B.Tech IV Semester

COURSE CODE: 11B11CE411 MAX. MARKS: 35

COURSE NAME: CONCRETE TECHNOLOGY

COURSE CREDITS: 4 MAX. TIME: 2 Hrs

Note: *All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. All questions carry equal marks.*

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1. Define the coefficient of permeability? Give the typical values of the coefficient for (a) fresh cement pastes, (b) Hardened Cement pastes, (c) commonly used aggregates, (d) high strength concretes and (e) mass concrete in dams.
2. Briefly describe the measures that should be considered for control of corrosion of embedded steel in concrete.
3. With respect to the corrosion of steel, explain the significance of the following terms: carbonation of concrete, passivity of steel, Cl^-/OH^- molar ratio of the contact solution, electrical resistivity of concrete, state of oxidation of iron.
4. A heavily reinforced and massive concrete structure is to be designed for coastal location in Mumbai. As a consultant to the primary contractor, write a report explaining the state of the art choice of cement type, aggregate size, admixtures, mix proportions, concrete placement and concrete curing procedures.
5. What do you understand by rheology of concrete? What the different models used for assessing the rheology of fresh concrete.
6. Explain in detail the steps of concrete mix design according to IS:10262:1982. Explain the major differences between IS:10262:1982 and IS:10262:2009.
7. Discuss the mechanisms by which mineral admixtures improve the durability of acidic waters. Why is that all fly-ash Portland cement or slag-Portland cement combinations may not turn out to be sulphate resisting?