

B.E./B.TECH. Degree Examination, December 2020**CE18007- CONCRETE TECHNOLOGY****(Regulation 2018)****Time: Three hours****Maximum : 80 Marks****Answer ALL questions**

Use of IS10262 : 2009 is permitted

PART A - (8 X 2 = 16 marks)

1. For the construction of structure in sea water the cement generally preferred is
 - a) Portland- pozzolana cement
 - b) Quick setting cement
 - c) Low heat Portland cement
 - d) Rapid hardening cement
2. The most useless aggregate is one whose surface texture is
 - a) Smooth
 - b) Granular
 - c) Glassy
 - d) Round
3. Higher workability of concrete is required if the structure is
 - a) Made with cement concrete
 - b) Thick and reinforced
 - c) Thin and heavily reinforced
 - d) Thick and heavily reinforced
4. For a concrete mix 1:3:6 and water cement ratio 0.6 both by weight, the quantity of water required per bag, is
 - a) 10 kg
 - b) 12 kg
 - c) 14 kg
 - d) 16 kg
5. Sketch a simple flow chart to indicate the dry process of cement manufacturing process
6. Define 'Useful work' with reference to workability of concrete
7. Write the few name's of the polymers used for making polymer concrete?
8. The process of Mix proportion of concrete cannot be computerized. why?

PART B - (4 X16 = 64 marks)

09. (a) Explain the test procedure for finding the compressive strength of cement and explain the composition and uses of expansive cement. (16)

(OR)

- (b) Explain how the alkali aggregate reaction can be controlled. Describe the test procedure for grading of aggregates with sample table **(16)**

10. (a) List at least eight admixtures used in concrete and explain the purpose of the same **(16)**

(OR)

- (b) Explain the effect of flyash on fresh and hardened concrete and durability of concrete **(16)**

11. (a) (i) Briefly explain how the inspection and testing of concrete in existing structure can be carried out **(10)**
 (ii) What are the characteristic requirements to be considered in the design of pumpable concrete? **(6)**

(OR)

- (b) Design a M30 grade concrete with compaction factor of 0.90 by IS code method for moderate exposure and good quality control condition using 20mm coarse aggregate which confirms to IS383 grading. Specific gravity of cement, fine and coarse aggregate is 3.15, 2.68 and 2.60 respectively. Water absorption of coarse and fine aggregate is 0.50% and 1.0 % respectively. Natural moisture content and grading zone of fine aggregate are 1.0% and zone III respectively. Assume suitable data if necessary. **(16)**

12. (a) How the stress strain characteristics of concrete are determined? Draw a typical stress strain curve and indicate how the various types of modulus of elasticity are found out from the curve. Mention the limitation of each type. **(16)**

(OR)

- (b) Define high performance fiber reinforced cementitious composites (HPFRCCs) and explain SIFCON in detail. Mention its uses and advantages **(16)**