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Code No: CE1515

GEC-R14

II B. Tech II Semester Supplementary Examinations, June 2017

CONCRETE TECHNOLOGY

(Civil Engineering)

Time: 3 Hours

Max. Marks: 60

Note: All Questions from **PART-A** are to be answered at one place.

Answer any **FOUR** questions from **PART-B**. All Questions carry equal Marks.

PART-A

6 × 2 = 12M

1. Give four examples of mineral admixtures.
2. Give two examples each of natural and artificial aggregates.
3. Write any differences between no fines concrete & high density concrete?
4. What is the water cement ratio when the amount of cement content is 500g and water content is 200ml?
5. Write a brief note on elastic properties of concrete.
6. Differentiate between M20 grade and M45 grade concrete.

PART-B

4 × 12 = 48M

1. a) Explain the role of chemical and mineral admixtures in concrete. (8M)
b) What do you understand by soundness of cement? (4M)
2. a) How is the specific gravity of coarse aggregate determined? (6M)
b) Give a brief note about deleterious substances in aggregates. (6M)
3. a) What is polymer concrete. Explain its types? (6M)
b) Explain HPC.(High Performance Concrete) ? (6M)
4. With neat diagram of the testing equipment describe the procedure for evaluation of cylindrical splitting tension strength of concrete. Explain the relation between compressive strength and tensile strength of concrete.(12M)
5. a) Explain volume changes associated with concrete due to drying shrinkage (6M)
b) List and explain the methods to control the chloride attack in concrete. (6M)

6. Design a concrete mix of M25 grade for a roof slab. Take a Standard deviation of 5 Mpa. The Specific gravities of Coarse Aggregate and Fine Aggregate are 2.62 and 2.74 respectively. The bulk density of coarse aggregate is 1610kg/m³ and fineness modulus of fine aggregate is 2.72. A slump of 60mm is necessary. The water absorption of coarse aggregate is 1% and free moisture in fine aggregate is 2%. Design the concrete mix using IS code 10262-2009 method. Assume any missing data suitably. (12M)
