

“Please check whether you have got the right question paper.”

- i) Q.1 and Q.6 are compulsory. Attempt any two questions from each section from remaining.
- ii) Draw neat sketches wherever necessary.
- iii) Figures to the right indicate full marks.

SECTION-A

- Q.1 Answer the following questions (any five) 10
- a) Enlist five types of cement.
 - b) What are the causes of segregation in concrete?
 - c) What is strength of concrete?
 - d) Define creep and shrinkage of concrete.
 - e) Enlist types of vibrators.
 - f) What are methods of compaction of concrete?
 - g) What is curing? What are various methods?
 - h) What is micro cracking? How does they occurs?
 - i) What is high strength concrete?
 - j) What are different grades of conc & how they are designated?
- Q.2 a) What are the methods of transportation of concrete. Explain in detail. 08
- b) Explain dry process of manufacturing of portland cement. Also draw a flow chart of this method. 07
- Q.3 a) Writ a note on classification of aggregates. 08
- b) What is meant by workability of concrete? What are the factors affecting workability? 07
- Q.4 a) Explain the terms normal consistency. Initial & final setling time, soundness of cement & grade of cement. 05
- b) Explain importance of water cement ratio an strength of concret. 05
- c) Explain importance of size, shaps & texture of aggregate in strength of cement. 05
- Q.5 Write short notes on 15
- a) Compaction of concrete.
 - b) Compressive strength & tensile test on concrete.
 - c) Initial & find setting time importance & why they are necessary.
 - d) Destructure & non-destructuctive testing of concrete.

SECTION-B

- Q.6 Answer the following (any 5) 10
- Mention any four types of concrete mixers
 - What does it mean by polymer concrete?
 - Mention disadvantages of self compacting concrete.
 - What is carbonation of concrete?
 - What is bulking of sand & mention its significances.
 - Define permeability & durability
 - What is meant by bulking & how many types are there for bulking ?
 - What is modulus of rupture
 - What is bleeding & laitance in concrete?
- Q.7 a) What do you mean by concrete mix design why it is necessary. Explain in detail. 08
b) What are the factors affecting durability of concrete. 07
- Q.8 a) What does it mean by light weight concrete? Write its uses & advantages. 08
b) What is fiber reinforced concrete. Explain in detail different types of fibers. 07
- Q.9 a) Design a concrete mix of grade M40 to suit following data as per IS 10262 15
- Type of cement OPC 43 grade as per IS 8112
 - Max nominal size of aggregate 20mm
 - Water cement ratio 0.45
 - Workability 100mm slump.
 - Method of Conc (pumping) placing
 - Max . cement content 450 kg/m³
 - Chemical admixture superplasticizer
 - Sp. Gravity cement 3.15
 - Sp. Gravity of C.A. 2.74
 - Sp. Gravity of F.A. 2.74
 - Water absorption: coarse agg-0.5%
Fine agg.-1.0%
- Q.10 Write short notes on (any three) 15
- High density concrete
 - Ready mix concrete
 - Mechanism of corrosion of concrete
 - Factors to be considered in mix design
 - Mineral admixture.