

(03 HOURS)

TOTAL MARKS : 80

- Instructions :** (1). Question No .1 is compulsory
 (2) Answer any **Three Questions** from the remaining questions.
 (3) Each full question carries **20** marks.
 (4) Assume suitable data, if needed and state it clearly.

- Q.1 Attempt any four
- a Enlist in detail classifications of engineering materials. (05M)
 - b Explain the preservative treatments for stones. (05M)
 - c State and explain the factors affecting durability of concrete. (05M)
 - d Describe the vacuum concreting method. (05M)
 - e Draw a neat labeled sketch of couple roof. (05M)
 - f Explain the methods of compaction of concrete. (05M)
- Q.2
- a) Explain bricks and their manufacturing process. (08M)
 - b) Define workability of concrete. State different methods to find out workability of fresh concrete and explain any one of them with step by step in detail. (12M)
- Q.3
- a) Sketch for providing damp proof course in foundation at plinth stating material used for damp proofing. (06M)
 - b) Enlist the joints in stone masonry and explain any one of them with a sketch. (04M)
 - c) Demerits of distemper as compared to paints. (04M)
 - d) Compare natural seasoning and kiln seasoning of timber. (06M)
- Q.4
- a) State the properties of hardened concrete and explain any one of them. (06M)
 - b) What is admixture? State its significance. (04M)
 - c) Explain in detail I.S. method of mix design with steps. (10M)
- Q.5
- a) Enlist the various components of RMC plant and draw a neat layout sketch of RMC plant. (08M)
 - b) Find-out FM of sand and classify it for the following observations. Also, determine the grading zone of sand as per clause No. 4.3 of IS 383:1970. (12M)
- | IS Sieve Size | 4.75 mm | 2.36 mm | 1.18 mm | 600 μ | 300 μ | 150 μ | R. Pan |
|------------------------|---------|---------|---------|-------|-------|-------|--------|
| Wt. Retained in 'gms.' | 03 | 85 | 280 | 260 | 170 | 90 | 112 |
- Q.6
- a) Write down engineering properties of glass. (04M)
 - b) Explain different types of flooring material and its applications in building. (08M)
 - c) Write down the period of removal of formwork for different structural members as per Clause No. 11.3.1 of IS 456 : 2000. (08M)

Data for Q.5 b)

Table 1 : Grading Limits for Fine aggregates (Sand), As per Clause No. 4.3 of IS 383 : 1970.

IS Sieve Designation	Percentage passing by weight for			
	Zone-I Grading	Zone-II Grading	Zone-III Grading	Zone-IV Grading
10 mm	100	100	100	100
4.75 mm	90 - 100	90 - 100	90 - 100	95 - 100
2.36 mm	60 - 65	75 - 100	85 - 100	95 - 100
1.18 mm	30 - 70	35 - 90	75 - 100	90 - 100
600 μ	15 - 34	35 - 59	60 - 79	80 - 100
300 μ	5 - 20	8 - 30	12 - 40	15 - 50
150 μ	0 - 10	0 - 10	0 - 10	0 - 15