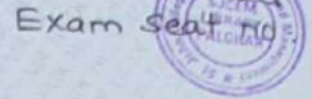


17 DEC 2019

(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
- Enlist in detail classifications of engineering materials. (05M)
 - Explain the preservative treatments for stones. (05M)
 - State and explain the factors affecting durability of concrete. (05M)
 - Describe the vacuum concreting method. (05M)
 - Draw a neat labeled sketch of couple roof. (05M)
 - Explain the methods of compaction of concrete. (05M)
- Q.2
- Explain bricks and their manufacturing process. (08M)
 - 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
- Sketch for providing damp proof course in foundation at plinth stating material used for damp proofing. (06M)
 - Enlist the joints in stone masonry and explain any one of them with a sketch. (04M)
 - Demerits of distemper as compared to paints. (04M)
 - Compare natural seasoning and kiln seasoning of timber. (06M)
- Q.4
- State the properties of hardened concrete and explain any one of them. (06M)
 - What is admixture? State its significance. (04M)
 - Explain in detail I.S. method of mix design with steps. (10M)
- Q.5
- Enlist the various components of RMC plant and draw a neat layout sketch of RMC plant. (08M)
 - 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
- Write down engineering properties of glass. (04M)
 - Explain different types of flooring material and its applications in building. (08M)
 - 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 |