**20CE304**

**Hall Ticket Number:**

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| **II/IV B.Tech (Regular / Supplementary) DEGREE EXAMINATION** | | | |
| **February,2023** | **Civil Engineering** | | |
| **Third Semester** | **Concrete Technology** | | |
| **Time:** Three Hours | | **Maximum: 7**0 Marks | |
| *Answer Question No.1 compulsorily.* | | | (14X1 = 14 Marks) |
| *Answer ONE question from each unit.* | | | (4X14=56 Marks) |
| Allow IS 10262:2019, IS456:2000. | | |  |

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| 1 | a) | | | Define heat of hydration. | | CO1 | L1 | |  |
|  | b) | | | What is the meaning of digit ‘43’ in 43 grade OPC? | | CO1 | L2 | |  |
|  | c) | | | What is the function of quick setting cement? | | CO1 | L1 | |  |
|  | d) | | | Define accelerator | | CO1 | L1 | |  |
|  | e) | | | Define batching. | | CO2 | L1 | |  |
|  | f) | | | What is the function of plasticizer? | | CO2 | L1 | |  |
|  | g) | | | Define segregation. | | CO2 | L1 | |  |
|  | h) | | | Classify fine aggregate and coarse aggregate. | | CO3 | L2 | |  |
|  | i) | | | What is the initial setting time of cement? | | CO3 | L1 | |  |
|  | j) | | | What is Abram’s Law? | | CO3 | L1 | |  |
|  | k) | | | List the names of any two tests for finding workability of concrete. | | CO3 | L1 | |  |
|  | l) | | | What are mineral admixtures? | | CO4 | L2 | |  |
|  | m) | | | What is the formula for calculating target mean strength? | | CO4 | L1 | |  |
|  | n) | | | Define high strength concrete. | | CO4 | L1 | |  |
|  | |  | | | **Unit - I** | | | | |
| 2 | a) | | Write about Bogue’s compounds. | | | CO1 | L2 | | 7M |
|  | b) | | Describe the hydration process of cement | | | CO1 | L1 | | 7M |
|  | |  | | | **(OR)** | | | | |
| 3 | a) | | Discuss in detail about bulking of fine aggregate | | | CO1 | L3 | | 7M |
|  | b) | | Explain the procedure of fineness test and standard consistency test for cement. | | | CO1 | L2 | | 7M |
|  | |  | | | **Unit - II** | | | | |
| 4 | a) | | Explain about compaction factor test. | | | CO2 | L1 | | 7M |
|  | b) | | Write a short note on segregation. | | | CO2 | L1 | | 7M |
|  | |  | | | **(OR)** | | | | |
| 5 | a) | | Describe the importance of curing and explain the different methods of curing. | | | CO2 | L3 | | 7M |
|  | b) | | What are the factors affecting the strength of concrete? | | | CO1 | L2 | | 7M |
|  | |  | | | **Unit - III** | | | | |
| 6 | a) | | Write a short note on Sulphate attack & its control measures. | | | CO3 | L1 | 7M | |
|  | b) | | Write about durability of concrete. | | | CO3 | L1 | 7M | |
|  | |  | | | **(OR)** | | | | |
| 7 | a) | | Write about chemical admixtures. | | | CO3 | L2 | 7M | |
|  | b) | | Explain about fly ash and its effect on strength of concrete. | | | CO3 | L3 | 7M | |
|  | |  | | | **Unit - IV** | | | | |
| 8 |  | | Design M30 grade concrete mix using IS method for the following data.  Specific gravity of cement = 3.12  Specific gravity of fine aggregate = 2.62  Specific gravity of coarse aggregate = 2.72  Fineness modulus of fine aggregate = 2.3 (Zone II sand)  Condition of exposure =Severe  Workability in terms of slump = 150 mm  Assume any necessary data suitably. | | | CO4 | L4 | 14M | |
|  | |  | | | **(OR)** | | | | |
| 9 | a) | | Write a note on light weight concretes | | | CO4 | L2 | 7M | |
|  | b) | | Explain about fibre reinforced concrete | | | CO4 | L3 | 7M | |

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