**Set-: I**

**Q. Paper Code:**

**23SYCE203303**

 **D.Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY**

**KASABA BAWADA KOLHAPUR-416006**

**(An Autonomous Institute)**

**S. Y. B. Tech Civil (Semester-III)**

**END SEMESTER EXAMINATION, Dec. – 2022**

Course Name: **Concrete Technology,** Course Code: **201CEL203**

Seat No:

**Day and Date: Friday, 20.01.2023**

**Time: 2.00 pm to 4.00 pm Max. Marks- 50**

***Instructions:***

1. *Question No. 1&2 is compulsory.*
2. *Figure to the right indicate full marks.*
3. *Make use of data provided for designing concrete mix.*

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| **BT** | **CO’s** | **Q. No.** |  | | **Marks** |
|  |  | **Q.1** | **All Questions are compulsory.** | | **20** |
| **2** | **203.1** | **a** | Explain dry process of cement manufacture. |  | **7M** |
| **2** | **203.2** | **b** | Write a detailed note on workability of concrete and the factors affecting workability of concrete. | **6 M** |
| **2** | **203.2** | c | Give detailed explanation on Shrinkage of concrete and types of shrinkage that occur in concrete. List out factors affecting shrinkage. | **7 M** |
|  | | | | | |
|  |  | **Q.2** | **All Questions are compulsory.** | | **10M** |
| **3** | **203.3** | **a**  **b** | Design a concrete mix for the following parameters by **Indian Standard** method  (i) Characteristic compressive strength@28 days – 20 N/mm2  (ii) Type of Cement – O.P.C. 43 Grade  (iii) Maximum size of available aggregate- 20 mm  (iv) Workability – 100 mm slump  (v) Exposure – (Mild for R.C.C.  (vi) Type of course aggregate – Crushed angular aggregate  (vii) Type of fine aggregate – Natural sand  **Test data for ingredients:**   1. Specific gravity of cement = 3.15 2. Specific gravity of C.A. = 2.7 3. Specific gravity of F.A. = 2.7 4. Water absorption of C.A. = 0.33% 5. Water absorption of F.A. = 1.20% 6. Free moisture in C.A. = 0.20 % 7. Free moisture in F.A. = 2.00% 8. Sand conforming to Zone I of IS:383- 2016   **OR**  Design a concrete mix for the following parameters by **ACI** **211.1-91** method  (i) Characteristic compressive strength@28 days – 30 N/mm2  (ii) Standard deviation – 5 MPa  (ii) Type of Cement – O.P.C. 43 Grade  (iii) Maximum size of available aggregate- 20 mm  (iv) Workability – 100 mm slump  (v) Exposure – (Mild for R.C.C.  (vi) Type of course aggregate – Crushed angular aggregate  (vii) Type of fine aggregate – Natural sand  **Test data for ingredients:**   1. Specific gravity of cement = 3.15 2. Specific gravity of C.A. = 2.7 3. Specific gravity of F.A. = 2.65 4. Dry rodded bulk density of C.A. = 1600 kg/m3 5. Fineness modulus of F.A. = 2.80 6. Water absorption of C.A. = 1 % 7. Free (surface) moisture in F.A. = 2.00 %   Assume any other data required. |  |  |
|  | | | | | |
|  |  | **Q.3** | **All Questions are compulsory.** | | **10M** |
| **2** | **203.2** | **a** | Write a short note on Air-entraining admixture. |  | **3M** |
| **2** | **203.2** | **b** | Define Admixture. Enlist different types of admixtures used in concrete? Explain Superplasticizers. | **7M** |
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|  |  | **Q.4** | **Attempt any two out of three questions** | | **10M** |
| **2** | **203.2** | **a** | Explain ‘ Durability Of Concrete ‘ and Enlist factors affecting the Durability |  | **5M** |
| **2** | **203.4** | **b** | Explain Light Weight Concrete in detail. | **5M** |
| **2** | **203.4** | **C** | Explain High Performance Concrete in detail. | **5M** |

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