1034

Code : 15CE-43T

Register Number | | | | | | | |

IV Semester Diploma Examination, April/May-2017

CONCRETE TECHNOLOGY

Time : 3 Hours] **[Max. Marks : 100**

Note : (i) Answer any **six** questions from Part-A, each question carries **5** marks.

(ii) Answer any **seven** questions from Part-B. (Question No. **19** is **compulsory** and any **six**). Each question carries **10** marks.

(iii) Students can carry IS : 10262-2009, assume any missing data suitably.

PART – A

1. Explain initial setting time and final setting time of cement. **5**

2. Explain with a graph relationship between compressive strength and water cement ratio. **5**

3. Explain bleeding of concrete. **5**

4. Write the techniques adopted to minimize the segregation of concrete. **5**

5. List the objectives of mix design. **5**

6. Describe the various methods of mixing of concrete. **5**

7. Describe the manufacturing process of ready mix concrete. **5**

8. List the applications of high strength concrete. **5**

9. Write the applications of Ferro Cement Concrete. **5**

PART – B

10. Explain with sketch test conducted on bulking of fine aggregates. **10**

11. List the precautions to be taken in storing the cement. **10**

12. Explain how gel/space ratio affecting strength of concrete with graph. **10**

13. (a) Define segregation. **2**

    (b) Explain the factors affecting workability. (any six) **8**

14. Explain with sketch IS method of flow test conducted on cement concrete. **10**

15. Explain the factors affecting mix proportions or design mix. (any five) **10**

16. Explain different methods of curing. **10**

17. Explain different methods of transportation of concrete. (any five) **10**

18. Explain the types of fibres used in fibre reinforced concrete. **10**

19. Design concrete mix proportion for M20 grade by IS : 10262-2009. **10**

    (i) Design stipulations for proportioning :

(a)	Grade of concrete	:	M 20 (RCC)
(b)	Type of cement	:	OPC 43 Grade
(c)	Max. nominal size of aggregates	:	20 mm
(d)	Minimum cement content	:	300 kg/m^3
(e)	Maximum water cement ratio	:	0.50
(f)	Workability	:	70 mm (slump)
(g)	Exposure condition	:	Moderate
(h)	Degree of supervision	:	Good
(i)	Type of aggregates	:	Crushed angular aggregates
(j)	Maximum cement content	:	400 kg/m^3
(k)	Chemical admixture	:	Not used

(ii) Test data for materials :

(a)	Cement used	:	OPC 43 grade
(b)	Specific gravity of cement	:	3.10
(c)	Specific gravity of coarse aggregates	:	2.7
(d)	Specific gravity of fine aggregates	:	2.68
(e)	Water absorption of		
	– Coarse aggregates	:	0.5%
	– Fine aggregates	:	0.9%
(f)	Surface moisture		
	– Coarse aggregates	:	– Nil –
	– Fine aggregates	:	– Nil –
(g)	Sieve analysis		
	– Coarse aggregates	:	Conforming to Table 2 of IS : 383
	– **Fine aggregates**	:	**Conforming to Zone I of IS : 383**