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17CV/CT44

## Fourth Semester B.E. Degree Examination, Jan./Feb. 2021 Concrete Technology

Time: 3 hrs.

Max. Marks: 100

- Note:** 1. Answer any FIVE full questions, choosing ONE full question from each module.  
 2. Any missing data may be suitably assumed.  
 3. IS 10262 : 2009 design code is allowed.

### Module-1

- 1 a. Describe any five tests that can be done on cement. (10 Marks)  
 b. Explain manufacture of cement by wet process with flow chart. (10 Marks)

OR

- 2 a. Explain impact and abrasion tests on coarse aggregate. (10 Marks)  
 b. Explain the properties of chemical admixtures and their role in concrete. (10 Marks)

### Module-2

- 3 a. Define workability and list the factors affecting workability and explain them. (10 Marks)  
 b. List the various tests to measure workability and explain VEE BEE consistometer test. (10 Marks)

OR

- 4 a. Explain manufacture of concrete in detail. (15 Marks)  
 b. Explain the following : i) Segregation ii) Bleeding. (05 Marks)

### Module-3

- 5 a. Explain following : i) Maturity of concrete ii) Modulus of Rupture. (06 Marks)  
 b. What are the different methods of testing hardened property of concrete? Explain. (14 Marks)

OR

- 6 a. Explain different types of shrinkages in concrete. (10 Marks)  
 b. Explain Rebound hammer and ultrasonic pull velocity test. (10 Marks)

### Module-4

- 7 Design the concrete mix for M20 grade concrete with following data :

a.	Characteristics compressive strength at 28 days	=	20MPa
b.	Maximum size of aggregate	=	20mm
c.	Workability	=	Slump (100mm)
d.	Degree of quality control	=	Good
e.	Type of exposure	=	Mild
f.	Specific gravity of cement	=	3.15
g.	Specific gravity of coarse aggregate	=	2.60
h.	Specific gravity of fine aggregate	=	2.60
i.	Sand conforming to zone 2		

Assume any other data suitably.

(20 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
 2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.

**OR****8** With the help of the following data, design M30 grade concrete :

a. Design stipulations :

i)	Characteristics compressive strength at 28 day	=	30MPA
ii)	Maximum size of aggregate	=	20mm
iii)	Degree of workability	=	Slump (75mm)
iv)	Degree of quality control	=	good
v)	Type of exposure	=	severe

b. Test data for materials :

i)	Specific gravity of cement	=	3.15
ii)	Specific gravity of coarse aggregate	=	2.64
iii)	Specific gravity of fine aggregate	=	2.61
iv)	Water absorption of coarse aggregate	=	0.5%
v)	Water absorption of fine aggregate	=	1.0%
vi)	Grading of fine aggregate	=	zone 02

Any missing data may be suitably assumed.

**(20 Marks)****Module-5**

- 9** a. Explain the advantages and disadvantages of RMC. **(10 Marks)**  
b. Explain the properties of SCC. **(10 Marks)**

**OR**

- 10** a. What is Light weight concrete? State its advantages. **(10 Marks)**  
b. Write a note on Fiber Reinforced Concrete. **(10 Marks)**

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