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Code No: 125EP

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, November/December - 2017

CONCRETE TECHNOLOGY

(Common to CEE, CE)

Time: 3 hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10-marks and may have a, b, c as sub-questions.

PART - A

(25 Marks)

- 1.a) What does the grade of cement indicate? [2]
- b) What are the merits and demerits of gap graded aggregate. [3]
- c) For which type of mix do you use Vee-Bee test? What are the units of measurements? [2]
- d) What is the simple test for suitability of water as per IS 456 code? [3]
- e) Define the Abram's law. [2]
- f) What are the different types of Shrinkage of concrete? [3]
- g) Define the term 'Durability' of concrete? [2]
- h) Differentiate between characteristic mean strength and target mean strength in concrete mix design. [3]
- i) What is Cellular concrete? [2]
- j) Differentiate between RCC and Fibre reinforced concrete. [3]

PART - B

(50 Marks)

- 2.a) Explain the chemical composition of ordinary Portland cement.
 - b) What is bulking of fine aggregate? Explain how bulking chart is prepared? [4+6]
- OR**
- 3.a) Explain in detail about surface acting admixtures.
 - b) Determine the fineness modulus of following aggregate sample of 5 kg. [5+5]

S.No.	Sieve size	Weigh retained in grams
1	40 mm	0
2	20 mm	1500
3	10 mm	3000
4	4.75 mm	500
5	2.36mm	0

- 4.a) Explain various steps in manufacture of concrete.
b) Explain about mixing of concrete and the effect of mixing time on properties of concrete. [5+5]

OR

- 5.a) Explain in detail about segregation of fresh concrete, factors effecting segregation.
b) With neat sketches explain compaction factor test as per IS standards. [5+5]

- 6.a) Calculate the maturity of M30 grade concrete at 14 days and 28 days when it is cured for 12 hours at 14°C and 25°C for the rest of a day. Plowman's constants A=21; B=61.0
b) Explain the ultrasonic pulse velocity type of non-destructive testing on hardened concrete? How the quality is assessed with UPV test? [5+5]

OR

- 7.a) What are the factors influencing creep?
b) Explain splitting tension test on concrete with neat sketches. [4+6]

- 8.a) Write a short note of Statistical quality control of concrete.
b) Explain effect of shape, size, water cement ratio on the design of concrete mixes? How they are taken care on BIS mix design. [5+5]

OR

- 9.a) Explain in detail the step wise mix design procedure for standard grade concrete using BIS method.
b) How bulking of sand is taken care in field mixes? [7+3]

- 10.a) Briefly explain about light weight aggregate concrete.
b) Explain the effect of orientation and aspect ratio on the properties of fibre reinforced concrete. [5+5]

OR

- 11.a) Explain 'V' funnel test for SCC with neat sketches? What are its ENARC specifications.
b) Write short notes on polymer impregnated concrete. [6+4]

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