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Code No: 135AD

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, November/December - 2018

CONCRETE TECHNOLOGY

(Common to CE, CEE)

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)	List various types of mineral and chemical admixtures.	[2]
b)	Define the characteristic mean strength and target mean strength.	[3]
c)	Write the bulking of sand effects.	[2]
d)	List the sizes of sieves used in sieve analysis of fine and coarse aggregates	[3]
e)	Write effect of time on workability.	[2]
f)	What are various types of slumps and their significance?	[3]
g)	Explain the types of shrinkages in concrete.	[2]
h)	What is the significance of Gel-space ratio?	[3]
i)	Define the durability of the concrete.	[2]
j)	Explain the term 'effective water' in a mix.	[3]

PART - B

(50 Marks)

2.a)	Explain the reactions of hydration of the main components in Portland cement.	
b)	Explain the influence of compound composition of cement on the setting properties of cement.	[5+5]
	OR	
3.a)	Discuss the structure of hydrated cement.	
b)	Explain how the Bogue's compounds can be calculated.	[5+5]
4.a)	What are grading limits and why are they specified?	
b)	Explain how alkali-aggregate reaction can be controlled.	[5+5]
	OR	
5.a)	Explain the significance of Gap-graded aggregates.	
b)	What is bulking of fine aggregate and how is it taken care of in the field?	[5+5]
6.a)	Explain the effect of time and temperature on the workability of concrete.	
b)	Explain the purpose and procedure for penetration resistance test on concrete.	[5+5]
	OR	
7.a)	What are the factors affecting the workability of the concrete?	
b)	Discuss the effect of quality mixing water on the performance of concrete.	[5+5]

8.a) Explain the maturity concept of concrete.
b) How would you determine the dynamic modulus of elasticity? [5+5]

OR

9.a) Explain any two non-destructive methods of testing concrete.
b) Discuss in detail the relation between compressive and tensile strength of concrete. [5+5]

10.a) Explain the tests to determine the flow properties of Self-compacting concrete.
b) What are the factors to be considered in the choice of concrete mix proportions? [5+5]

OR

11.a) Explain the sampling and acceptance criteria for each concrete batch.
b) Explain how ACI method is different from BIS method of mix design. [5+5]

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