Code No: 135AD

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, December - 2019
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.

No Code book or data sheet is allowed:

PART - A
(25 Marks)

1.a)	What is the meaning of pozzolanic reaction?	[2]
b)	Difference between flash setting and false setting	[3]
c)	Write the effect of particle shape and texture on cement strength.	[2]
d)	What is the meaning of gap-graded aggregate?	[3]
e)	What are types of slumps and their inference?	[2]
f)	What are various workability tests on concrete?	[3]
g)	What is Abram's Law?	[2]
h)	What are the effects of creep in concrete?	[3]
i)	List the types of fibres used in fibre reinforced concrete.	[2]
j)	What is high performance concrete?	[3]

PART - B
(50 Marks)

2.a) Draw and explain a typical heat of evolution pattern during cement hydration.
 b) Explain why is it desirable to use pozzolanic admixtures in concrete.   [5+5]

OR

3.a) Write short notes on different types of chemical admixtures used in concrete.
 b) Explain the various physical tests of cement.   [5+5]

4.a) Explain the types of alkali aggregate reactions along with its causes and prevention measures.
 b) Explain how is flakiness index of aggregates can be determined.   [5+5]

OR

5.a) What is the role of gradation curves in the concrete mix design?
 b) What is bulking of sand and its effect on the mix design of concrete?   [5+5]

6.a) Explain the salient features of the procedure to determine the setting times of concrete.
 b) Explain the IS code provisions regarding quality of mixing water in concrete.   [5+5]

OR

7.a) Explain the effect of time and temperature on workability.
 b) How can segregation and bleeding be controlled in concrete?   [5+5]

8.a) What are the beneficial and harmful effects of creep in concrete?
  b) Explain the rheology of creep and draw the creep curve showing the creep recovery.

[5+5]

OR

9.a) Explain the relation between static and dynamic modulus of elasticity.
  b) What is the effect of water-cement ratio on the strength of the concrete? [5+5]

10.a) Explain the IS Code acceptance criterion provisions.
  b) Explain the development process of geo-polymer concrete. [5+5]

OR

11.a) Write in detail the stepwise procedure of designing concrete mix using BIS method.
  b) Explain the methods to develop light weight concrete. [5+5]

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