Total No of Questions: [12] **SEAT NO. :** _____

[Total No. of Pages : 2]

S.E. Civil Engineering(2008 Course) Examination, 2014

CONCRETE TECHNOLOGY

(Semester -II)

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

Instructions to the candidates:

1) **Answer Q. 1 or 2, 3 or 4, 5 or 6 from section I and Q 7 or 8, 9 or 10, 11 or 12 from section II.**
2) **Answers to the two sections should be written in separate answer books.**
3) **Neat diagrams must be drawn wherever necessary.**
4) **Figures to the right side indicate full marks.**
5) **Your answers will be valued as a whole.**
6) **Use of electronic pocket calculator is allowed.**
7) **Assume Suitable data if necessary**
8) **Use of IS code 10262 is not allowed.**

SECTION I

Q1)	a)	What is heat of hydration? How different compounds of cement contribute to heat of hydration?	[5]
	b)	Write a short note on classification of Aggregates.	[6]
	c)	What are the different functions of admixtures?	[6]
		Or	
Q2)	a)	Explain the wet process of manufacturing of cement.	[5]
	b)	Enumerate the different tests carried on aggregates. State the significance and procedure of aggregate crushing value test.	[6]
	c)	What are the different types of admixtures? Explain any two in detail.	[6]
Q3)	a)	Explain physical properties of aggregates affecting workability of concrete.	[5]
	b)	Explain in detail importance of compaction of concrete .What are the different methods of compaction?	[6]
	c)	What are the factors affecting strength of concrete?	[6]
		Or	
Q4)	a)	What are different methods to measure workability of concrete? Explain any one in detail.	[5]
	b)	Explain the difference between bleeding and segregation and state measures to be taken to avoid each.	[6]
	c)	Define creep of concrete. What are the factors affecting creep of concrete?	[6]
Q5)	a)	What do you mean by i)Mean strength ii)Variance iii)Standard deviation iv)Coefficient of variation	[4]
	b)	What do you mean by concrete mix design? What are the objectives in mix design?	[6]
	c)	Explain DOE method mix design in brief.	[6]
		Or	
Q6)	a)	Explain the factors governing the selections of mix proportions.	[4]

	b)	What do you mean by nominal mix, standard mix and design mix?	[6]
	c)	Write step by step procedure for concrete mix design by using I.S. code 10262 method.	[6]
		SECTION II	
Q7)	a)	Enlist basic members required for formwork.	[4]
	b)	Write short notes on i) Marsh cone test ii)Impact echo test iii)Ultrasonic pulse velocity test	[12]
		Or	
Q8)	a)	Write a short note on analysis of fresh concrete.	[4]
	b)	State the various types of non destructive tests carried on hardened concrete. Explain Rebound hammer test with its limitations.	[6]
	c)	Explain briefly principles of design of formwork	[6]
Q9)	a)	Describe the types of vibrators used for compaction of concrete.	[4]
	b)	Write short note on i)Light weight concrete ii)Ready mixed concrete iii)Ferro cement	[12]
		Or	
Q10)	a)	What is self compacting concrete? What are advantages and disadvantages of it?	[4]
	b)	Write short note on i)High density concrete ii)Fiber reinforced concrete iii)Under water concreting	[12]
Q11)	a)	Explain in detail carbonation of concrete.	[4]
	b)	Explain in detail permeability and factors affecting permeability of the concrete.	[6]
	c)	Write a short note on i)Evaluation of crack ii)Selection of repair procedure	[8]
		Or	
Q12)	a)	How are cracks controlled in mass concreting?	[4]
	b)	What is durability of concrete? What is significance of durability? What effect w/c ratio makes on durability?	[6]
	c)	Write a short note on i) Shotcrete ii)Repair by stitching	[8]