Ref. No. EX/CON/PC/B/T/224/2022

B. E. CONSTRUCTION ENGINEERING 2ND YEAR 2ND SEMESTER - 2022

SUBJECT: CONCRETE TECHNOLOGY

Time : Three Hours **Full Marks : 50**

Part I

	Question No.		Marks
CO1 [20]		**Answer any two from question (1), question (2), and question (3) in this block**	
	Q1.	Briefly discuss particle shape and texture of aggregate. How do they affect the performance of concrete?	10
	Q2a.	Discuss how to store aggregates at construction site ?	05
	Q2b.	The grading of 20mm & 12.5mm single sized coarse aggregates as well as fine aggregates are given below.	05

Sieve Size (mm)	% Finer			Permissible limit as per Table 10 of IS 383:2016
	20.0 mm	10.0mm	Fine Aggregate	
20.0	100.0	100.0	100.0	95-100
12.5	100.0	100.0	100.0	
10.0	15.0	85.0	100.0	
4.75	Nil	Nil	90.0	30-50
2.36	Nil	Nil	80.0	
1.18	Nil	Nil	70.0	
0.600	Nil	Nil	60.0	10-35
0.300	Nil	Nil	20.0	
0.150	Nil	Nil	5.0	0-6

Find out their proportions by weight so that the combined grading satisfies the requirement of percentage passing for All-in-aggregate of 20mm nominal size as per Table 10 of IS 383:2016.

	Q3a.	Define M-25 grade concrete ?	02
	Q3b.	Name the different laboratory test, usually carried out, to ascertain the quality of aggregate ?	03

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Part I

	Question No.		Marks
	Q3c.	Select the correct answer i) The bulking of sand is caused due to a) Void b) Angularity c) Surface Moisture d) Porosity ii) The fineness modulus of sand will be maximum in case of a) Zone-I b) Zone-II c) Zone-III d) Zone-IV iii) If the water-cement ratio is 0.5 and water content is 200kg, the cement content of the concrete mix will be a) 100 kg b) 200 kg c) 300 kg d) 400 kg	03
	Q3d.	State whether the following statements are TRUE or FALSE. i) Flaky and elongated aggregates are good for concrete. ii) Compressive strength of concrete decreases with increase in water-cement ratio.	02
CO3 [10]		**Answer any two from question (4a), question (4b), and question (4c) in this block**	
	Q4a.	What do you understand by curing of concrete ? Write a short note on curing by ponding/ immersion in water ?	05
	Q4b.	Write a short note on pouring of concrete by Tremie method.	05
	Q4c.	State the guidelines for a site supervision for checking the compaction of concrete by nozzle vibrator. How one can ensure that the compaction by nozzle vibrator is complete?	05
CO4 [05]	Q5.	What is the purpose of concrete mix design ?	05
CO5 [15]	Q6a.	Briefly discuss the different factors that affect the durability of concrete.	08
	Q6b.	Briefly discuss the procedure of casting, curing and testing of concrete cube specimens	07

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B. Construction Engineering 2nd year 2nd semester Examination – 2022

Subject: Concrete Technology

Part-II(Full Marks-50)

Use separate Answer Sheet for part-II and Part-I

[1]	Answer both questions [5×2=10] [1] (a) Describe the wet process of manufacturing of Ordinary Portland cement? (b) Describe the dry process of manufacturing of Ordinary Portland cement?
[2]	[2] Write Short notes on any four *in this block* - [5×4=20] a. Hydration process of cement b. Bogues compounds c. Causes of segregation and bleeding in concrete d. Slump Test and its requirements of slump value as per IS. e. Factors affecting the workability of concrete
[3]	*Answer any Four from this block:* [5×4=20] [3] a. Describe in brief the Alkali silica reaction in concrete. b. Describe in brief the steps for durability of concrete. C. Write a short note on the phenomenon of sulphate attack on concrete. d. Write short notes on the phenomenon of carbonation of concrete. e. Write down the different step for making a good concrete.