

B. E. CONSTRUCTION ENGINEERING 2ND YEAR 2ND SEMESTER - 2018**SUBJECT: CONCRETE TECHNOLOGY**

Time : Three Hours

Full Marks : 100

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.	What are the different purposes of using chemical admixtures in concrete ?	05														
Q2b.	Write a short note on retarding admixture.	05														
Q3a.	Calculate the fineness modulus of a sand sample from the following data	07														
	<table border="1"> <thead> <tr> <th>Sieve size (mm)</th> <th>Weight retained (gm)</th> </tr> </thead> <tbody> <tr> <td>4.75</td> <td>Nil</td> </tr> <tr> <td>2.36</td> <td>10.0</td> </tr> <tr> <td>1.18</td> <td>50.0</td> </tr> <tr> <td>0.600</td> <td>72.0</td> </tr> <tr> <td>0.300</td> <td>28.0</td> </tr> <tr> <td>0.150</td> <td>20.0</td> </tr> </tbody> </table>	Sieve size (mm)	Weight retained (gm)	4.75	Nil	2.36	10.0	1.18	50.0	0.600	72.0	0.300	28.0	0.150	20.0	
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	Total weight of sample taken for sieve analysis 200gm.															
Q3b.	What is the significance of fineness modulus ?	03														
CO3 [05]	Q4. State whether the following statements are TRUE or FALSE	05														
	i) Concrete is filled in cube mould in there equal layer and each layer is tamped 25 times by a steel rod of 16mm dia and 600mm long.															
	ii) If fineness modulus is more, the sand will be of relatively coarser grading .															
	iii) The pH value of water, to be used in concrete, shall be less than 6.															

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Part I

	Question No.		Marks
	iv)	For pumped concrete, the minimum slump is 25mm.	
	v)	Minimum period before striking of formwork of column is 16-24 hrs.	
CO4 [10]	Q5.	<p>Calculate the quantities of coarse and fine aggregate by weight per m³ of concrete based on the following data.</p> <p>Volume of entrapped air : 2%. Water cement ratio : 0.45 Water : 180kg. Specific gravity of cement : 3.14 Specific gravity of fine aggregate : 2.66 Specific gravity of coarse aggregate : 2.89 Ratio of finer aggregate to total aggregate by absolute volume = 33%</p>	10
CO5 [15]		Answer any two from question (6a), question (6b), and question (6c) in this block	
	Q6a.	Briefly discuss the procedure of casting, curing and testing of concrete cube specimen	7.5
	Q6b.	Prepare a check list for supervisors for placement of concrete	7.5
	Q6c.	Write short note on a) Form vibrator b) Surface vibrator	7.5

B. Construction Engineering 2nd year 2nd semester Examination – 2018

Subject: Concrete Technology

Time : Three hours

Full Marks: 100

Part-II(Full Marks-50)

Use separate Answer Sheet for Each Part

01 5]	<p>Answer any one from (a) and (b) in this block- [10]</p> <p>[1] (a) Describe the wet process of manufacturing of cement? (b) Describe the dry process of manufacturing of cement?</p> <p>[2] Write short notes on any three <u>from (a), (b), (c), (d) and (e) in this block</u> [5X3=15]</p> <p>a. PPC b. Hydrophobic Cement c. PSC d. ASTM classification of different types of Portland Cement e. Rapid Hardening Cement</p>
2 1]	<p>Write Short notes on any three <u>from (a), (b), (c), (d) and (e) in this block</u> - [5X3=15]</p> <p>a. Hydration of Cement b. Bogues Compounds c. Causes of Segregation in Concrete d. Vee Bee Consistometer Test e. Factors affecting Workability of Concrete</p>
	<p><u>Answer any two(2) from (a), (b), (c), (d) and (e) from this block:</u> [5X2=10]</p> <p>[5] a. Describe in brief the Alkali aggregate reaction in concrete? b. Describe in brief the effect of freeze thaw cycles on the durability of concrete? c. Write a short description on the phenomenon of sulphate attack on concrete? d. Write a short description on the phenomenon of carbonation of concrete? e. Write a Short note on Gel/Space ratio.</p>

Describe cement, Types of cement, aggregate, admixture and concrete (K1)

Describe hydration of cement and properties of concrete in fresh state (K2)

Describe different field activities related to concrete (K2).

Develop concrete mix proportions through Mix Design (K3)

Assess different measures for ensuring durability of concrete and Construction Quality Control & strength of concrete (K3)