P P SAVANI UNIVERSITY

Forth Semester of B. Tech. Examination

November 2022

SECV2110 Concrete Technology

05.12.2022, Monday **Time: 01:00 p.m. To 03:30 p.m.** **Maximum Marks: 60**

Instructions:

1. The question paper comprises of two sections.
2. Section I and II must be attempted in same answer sheet.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

SECTION – I

Q - 1	Answer the Following: (Any five)	**[05]**	**CO**	**BTL**
(i)	What is concrete?		**1**	**1**
	a) A mixture of homogenous materials			
	b) A mixture of material and hydrogen			
	c) A mixture of cement and hydrogen sulphide			
	d) A mixture of cement, water, and aggregate			
(ii)	What is the objective of concrete technology?			**2**
	a) To find the material strength			
	b) Calculate the amount of cement required			
	c) To define and understand concepts related to Cement			
	d) To define and understand concepts related to Concrete technology			
(iii)	What is the importance of the Standard Consistency Test?		**3**	**3**
	a) It is used to determine the quality of water			
	b) It is used to determine the quality of aggregates			
	c) It is used to determine the quality of cement			
	d) None of the above			
(iv)	Hydration of cement is chemical reaction of cement with _____		**1**	**1**
	a) base			
	b) acid			
	c) salt and acid			
	d) water			
(v)	Which of the following ratio is also known as water-cement ratio?		**2**	**3**
	a) Weight of water to the weight of aggregates			
	b) Density of cement to the Density of cement			
	c) Weight of water to the weight of cement			
	d) Volume of cement to the volume of cement			
(vi)	How many layers of concrete are needed to fill a slump cone?		**3**	**3**
	a) 5 layers by volume			
	b) 3 equal layers by height			
	c) 3 equal layers by volume			
	d) 5 layers			
(vii)	What is the total percentage of aggregates in concrete in terms of volume?		**1**	**5**
	a) 65-80%			
	b) 90%			
	c) 60-75%			
	d) 40%			
Q - 2 (a)	What are BOGUE'S compounds. explain their contribute in developing the strength of concrete.	**[05]**	**2**	**2**
Q - 2 (b)	Explain cement manufacturing process with diagram.	**[05]**	**1**	**6**

	OR			
Q - 2 (a)	Write about the laboratory tests of cement. which test do you choose to find strength of cement in laboratory? Explain in details.	[05]	1	4
Q - 2 (b)	Explain importance of cement in concrete.	[05]	1	1
Q - 3 (a)	List out types of cement and explain any two.	[05]	1	2
Q - 3 (b)	List out factor's affecting workability of concrete.	[05]	3	2
	OR			
Q - 3 (a)	Explain procedure for finding initial and final setting time of cement.	[05]	1	4
Q - 3 (b)	Explain Bleeding and Segregation in concrete.	[05]	3	4
Q - 4	Attempt any one.	[05]		
(i)	Give classification of aggregates.		1	6
(ii)	What are the properties of water use in concrete?		1	2
	SECTION – II			
Q - 1	Answer the Following: (Any five)	[05]		
(i)	The _____ compressive strength required from structural consideration. a) Nominal b) Minimum c) Maximum d) No		3	1
(ii)	Tensile test can be performed on _____ a) Impact testing machine b) Universal testing machine c) Rockwell tester d) Brinell tester		3	1
(iii)	Static modulus of elasticity of concrete has been related to its _____ a) Tensile strength b) Compressive strength c) External strength d) Applied force		3	3
(iv)	_____ water-cement ratio content to give adequate durability for the particular site conditions. a) Minimum b) Nominal c) .5 d) Maximum			3
(v)	Initial setting time of OPC should not be less than _____ a) 15 minutes b) 30 minutes c) 28 minutes d) 1 hour		1	1
(vi)	The separation of water or water-cement mixture from the freshly mixed concrete is known as bleeding. a) True b) False		1	6
(vii)	Harshness in concrete is due to the excess of _____ a) Water b) Finer particles c) Middle sized particle d) Coarser particle		1	6
Q - 2 (a)	Explain compressive strength of the concrete and what are the properties of it.	[05]	3	2

Q - 2 (b)	Write a short note on Durability of concrete	[05]		2
	OR			
Q - 2 (a)	Explain tensile strength of the concrete.	[05]	3	1
Q - 2 (b)	What are the factors affecting on Durability of concrete?	[05]	3	2
Q - 3 (a)	What are the factors influencing the choice of the mix design.	[05]	2	2
Q - 3 (b)	Explain Mass concreting in detail.	[05]		1
	OR			
Q - 3 (a)	Write-down the steps for Mix design of the concrete.	[05]		5
Q - 3 (b)	Explain various methods of the curing of the concrete.	[05]		4
Q - 4	Attempt any one.	[05]		
(i)	High strength concrete		2	2
(ii)	Self-compacting concrete		2	2

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CO : Course Outcome Number BTL : Blooms Taxonomy Level

Level of Bloom's Revised Taxonomy in Assessment

1: Remember	2: Understand	3: Apply
4: Analyze	5: Evaluate	6: Create