



BTECH (SEM V) THEORY EXAMINATION 2024-25 **CONCRETE TECHNOLOGY**

TIME: 3 HRS

M.MARKS: 100

Note: Attempt all Sections. In case of any missing data; choose suitably.

SECTION A				
1.	Attempt all questions in brief.	$2 \ge 10 = 20$		
Q no.	Question	CO	Level	
a.	Describe "heat of hydration".	1	K2	
b.	Describe the different zones of fine aggregate as per IS383.	1	K2	
c.	Describe Pozzolana.	2	K2	
d.	Describe Admixture.	2	K2	
e.	Discuss the preference of weigh batching over volume batching.	3	K2	
f.	Discuss compaction of concrete.	3	K2	
g.	State the objectives of Mix Design.	4	K1	
h.	Describe characteristic compressive strength.	4	K2	
i.	Enlist the various tests for determining the workability of Self	5	K1	
	compacting Concrete.			
j.	Describe ready mix concrete.	5	K2	

SECTION B

i.	Enlist the various tests for determining the workability of Self	5	K1	
	compacting Concrete.			65
j.	Describe ready mix concrete.	5	K2	0.1
				1.1
	SECTION B		N.	
2.	Attempt any <i>three</i> of the following:	10 x	x 3 = 30	*
a.	Discuss briefly the physical properties of cement.	1 (K2	
b.	Discuss how entrained air help in reducing segregation, bleeding &	2	•K2	
	laitance.	>		
c.	Explain Under water concreting.	3	K2	
d.	Discuss the concept of Mix Design.	4	K2	
e.	What is Self-Compacting Concrete? Discuss its properties and uses.	5	K2	
	6			
	SECTION C			
3	Attempt any and part of the following:	10 •	v 1 = 10	

SECTION C

3.	Attempt any <i>one</i> part of the following:	10 2	x 1 = 10
a.	Explain Rapid hardening cement and sulphate resisting cement. Also	1	K2
	explain their suitability.		
b.	Explain the dry process of manufacturing of cement.	1	K2

4.	Attempt any <i>one</i> part of the following:	10 x	x 1 = 10
a.	Explain mineral Admixtures. Discuss the suitability and uses of	2	K2
	various types of mineral admixtures.		
b.	Explain the principle and uses of Accelerating and retarding	2	K2
	admixture.		

5.	Attempt any one part of the following:	10 x	1 = 10
a.	Explain curing of concrete. Discuss the various methods of curing.	3	K2
b.	Explain the importance of compaction of concrete. Also explain the various types of vibrators used.	3	K2

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Roll No:

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<u>6.</u>	Attempt any one part of the following:	10 x	1 = 10	
a.	Design a concrete mix for M30 grade concrete by IS method. Given	4	K3	
	data: maximum nominal size of aggregate: 20mm; minimum cement			
	content: 340kg/cum; w/c ratio: 0.45; workability: 100mm slump;			
	exposure: very severe; concreting type: manual; quality at site: good;			
	aggregate type: angular; Volume of Coarse aggregate per unit volume			
	of total aggregate for Zone II of Fine Aggregate= 0.62; specific gravity			
	of (cement – 3.15, Coarse aggregate – 2.68, Fine aggregate - 2.62);			
	Design using IS 10262 – 2019. For M30 grade of concrete values of X			
	& S, 6.5 & 5.0 respectively.			
b.	Design a concrete mix for M25 grade concrete by IS method. Given	4	K3	
	data: maximum nominal size of aggregate: 20mm; minimum cement			
	content: 300kg/cum; w/c ratio: 0.48; workability: 100mm slump;			
	exposure: Moderate; concreting type: Pumping; aggregate type:			
	angular; Volume of Coarse aggregate per unit volume of total aggregate			0
	for Zone III of Fine Aggregate= 0.64 ; specific gravity of cement – $(3.14,$			02
	Coarse aggregate – 2.795, Fine aggregate – 2.517); Design using IS			J.V
	10262 – 2019. For M25 grade of concrete values of X & S, 5.5 & 4.0			1.1
	respectively.			
				*

7.	Attempt any <i>one</i> part of the following:	10 x) = 10
a.	Explain Ferrocement. Discuss the properties and uses of Ferrocement.	5	K2
b.	Explain Self compacting concrete (SCC) discussing its limitations and	5	K2
	future use.		
	Tuture use.	L	