

**Subject Code: XXXXX**

**Roll No:**

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**BTECH  
(SEM-5) CONCRETE TECHNOLOGY 2021-22**

**TIME:3 HOUR**

**Total Marks: 100**

**Instruction:** Attempt the questions as per the given instructions. Assume missing data suitably.

**SECTION - A**

**Attempt *All Parts* in Brief**

**2\*10 = 20**

<b>Q1</b>	<b>Questions</b>	<b>Marks</b>
(a)	List four Bogue's compounds with their percentage in ordinary portland cement.	2
(b)	Why the cement should not be allowed come in moisture contact?	2
(c)	Why accelerators are added to concrete?	2
(d)	Define silica fume.	2
(e)	What is durability of concrete?	2
(f)	Define M 45.	2
(g)	What do you know about mix design of concrete ?	2
(h)	What is the effect of Ca (OH) <sub>2</sub> in concrete?	2
(i)	Define high strength concrete.	2
(j)	Define ready mix concrete.	2

**SECTION - B**

Attempt Any Three of the following

3\*10 = 30

Q2	Questions	Marks
(a)	How will you determine the compressive strength of cement? Explain briefly the procedure.	10
(b)	Write short notes on fly ash and GGBS.	10
(c)	Explain how will you determine the modulus of elasticity of concrete experimentally?	10
(d)	What is the relation between compressive and tensile strength of concrete ?	10
(e)	Discuss the properties of high weight concrete its applications.	10

### SECTION - C

Attempt Any One of the following

5\*10 = 50

Q3	Questions	Marks
(a)	Briefly describe the following tests on aggregate: specific gravity test, crushing test and impact test.	10
(b)	Explain with chemical reaction hydration of high alumina cement.	10
Q4	Questions	Marks
(a)	Describe the effect of following admixtures on cement concrete and give three examples of each. Retarders, accelerators and water proofers.	10
(b)	Explain the effect of concrete properties while adding silica fumes and GGBS.	10
Q5	Questions	Marks
(a)	Discuss briefly the effects of adding mineral admixtures to cement concrete.	10
(b)	List the various methods of mix design. Briefly describe the IS method.	10
Q6	Questions	Marks
(a)	Design a concrete mix for construction of an elevated water tank. The specified strength of concrete is 30 MPa at 28 days measured on standard cylinders. Standard deviation can be taken as 4 MPa. The specific gravity of FA and CA are 2.65 and 2.7 respectively. The dry rodded bulk density of CA is 1600 kg/m <sup>3</sup> and fineness modulus of FA is 2.80. Ordinary Portland cement (type 1) will be used. A slump of 50 mm is necessary. CA is found to be absorptive to the extent of 1% and free surface moisture in sand is found to be 2%. Assume any other essential data by ACI committee method.	10
(b)	What data required for mix proportioning ? Describe with point to point.	10

Q7	Questions	Marks
(a)	Explain the mineral admixtures for self compacting concrete.	10
(b)	Explain comparison between traditional and SSC constituents with neat sketch.	10