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**B.TECH.**  
**(SEM V) THEORY EXAMINATION 2021-22**  
**CONCRETE TECHNOLOGY**

Time: 3 Hours

Total Marks: 100

**Note:** 1. Attempt all Sections. If require any missing data; then choose suitably.

**SECTION A**

**1. Attempt all questions in brief.**

| Q no. | Question   | Marks | CO |
|-------|--|-------|----|
| a.    | List four Bogue's compounds with their percentage in ordinary Portland cement. | 2     | 1  |
| b.    | Why the cement should not be allowed come in moisture contact?                 | 2     | 1  |
| c.    | Why Accelerators are added to concrete?  | 2     | 2  |
| d.    | Define silica fume.  | 2     | 2  |
| e.    | What is durability of concrete?  | 2     | 3  |
| f.    | Define M 45 .  | 2     | 3  |
| g.    | What do you know about mix design of concrete?                                 | 2     | 4  |
| h.    | What is the effect of Ca (OH) <sub>2</sub> in concrete?                        | 2     | 4  |
| i.    | Define high strength concrete.   | 2     | 5  |
| j.    | Define ready mix concrete.   | 2     | 5  |

**SECTION B**

**2. Attempt any three of the following:**

| Q no. | Question   | Marks | CO |
|-------|--|-------|----|
| a.    | How will you determine the compressive strength of cement ? Explain briefly the procedure. | 10    | 1  |
| b.    | Write short notes on fly ash and GGBS  | 10    | 2  |
| c.    | Explain how will you determine the modulus of elasticity of concrete experimentally.       | 10    | 3  |
| d.    | What is the relation between compressive and tensile strength of concrete?                 | 10    | 4  |
| e.    | Discuss the properties of high weight concrete and its applications..                      | 10    | 5  |

**SECTION C**

**3. Attempt any one part of the following:**

| Q no. | Question  | Marks | CO |
|-------|---|-------|----|
| a.    | Briefly describe the following tests on aggregate : specific gravity test, crushing test and impact test. | 10    | 1  |
| b.    | Explain with chemical reaction hydration of high alumina cement.  | 10    | 1  |

**4. Attempt any one part of the following:**

| Q no. | Question   | Marks | CO |
|-------|--|-------|----|
| a.    | Describe the effect of following admixtures on cement concrete and give three examples of each. Retarders, accelerators and water proofers.. | 10    | 2  |



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|----|---|----|---|
| b. | Explain the effect of concrete properties while adding silica fumes and GGBS. | 10 | 2 |
|----|---|----|---|

**5. Attempt any one part of the following:**

| Q no. | Question   | Marks | CO |
|-------|--|-------|----|
| a.    | Discuss briefly the effects of adding mineral admixtures to concrete.. | 10    | 3  |
| b.    | List the various methods of mix design. Briefly describe the IS method | 10    | 3  |

**6. Attempt any one part of the following:**

| Q no. | Question   | Marks | CO |
|-------|--|-------|----|
| 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 C.A. are 2.65 and 2.7 respectively . The dry rodded bulk density of C.A. 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 dat by ACI committee method. | 10    | 4  |
| b.    | What data required for Mix proportioning ? Describe with point to point.   | 10    | 4  |

**7. Attempt any one part of the following:**

| Q no. | Question  | Marks | CO |
|-------|---|-------|----|
| a.    | Explain the mineral admixtures for self compacting concrete..                 | 10    | 5  |
| b.    | Explain comparison between traditional and SSC constituents with neat sketch. | 10    | 5  |