PAPER ID-310853

Subject Code: KCE051

Roll No: | | | | | | | | | | | | | |

BTECH
(SEM V) THEORY EXAMINATION 2023-24
CONCRETE TECHNOLOGY

TIME: 3 HRS **M.MARKS: 100**

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

SECTION A

1. Attempt *all* questions in brief. **2 x 10 = 20**

Q no.	Question	Marks	CO
a.	Define heat of hydration.	2	1
b.	What is called clinker?	2	1
c.	What is the application of accelerator in concrete?	2	2
d.	What is pozzolana?	2	2
e.	Explain curing of concrete.	2	3
f.	What do you mean by shrinkage?	2	3
g.	What is Abram's law?	2	4
h.	What is mean strength?	2	4
i.	Discuss self-compacting concrete.	2	5
j.	What do you understand by high strength concrete?	2	5

SECTION B

2. Attempt any *three* of the following: **10x3=30**

a.	Explain effect of impurities in the mixing water on concrete.	10	1
b.	What is air-entrained concrete? Explain the factors affecting the air entrainment in the concrete.	10	2
c.	Describe the various steps in manufacturing of concrete in detail.	10	3
d.	What do you mean by Rheology of fresh concrete?	10	4
e.	Explain fibre reinforced concrete. Describe different uses of fibre reinforced concrete.	10	5

SECTION C

3. Attempt any *one* part of the following: **10x1=10**

a.	What is the Bogue's compound of Portland cement? Explain in detail.	10	1
b.	Explain the bulking and soundness of aggregates.	10	1

4. Attempt any *one* part of the following: **10x1=10**

a.	What is fly ash? Give the advantages and disadvantages of fly ash.	10	2
b.	Explain the effect of super plasticizer on the properties of fresh and hardened concrete.	10	2

5. Attempt any *one* part of the following: **10x1=10**

a.	Define segregation. Explain the factors affecting segregation of concrete.	10	3
b.	Define workability. What are the factors affecting the workability of concrete?	10	3

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6. Attempt any *one* part of the following: 10x1=10

a.	Explain step by step IS method of mix proportioning.	10	4
b.	Design a concrete mix for M20 grade of concrete using ACI committee method with the following data: Grade Designation = M 20 Type of cement = O.P.C- 43 grade Max Nominal size of aggregate = 20 mm Design strength of concrete (at 28 days) = 30MPa Standard deviation= 4 MPa Dry rodded bulk density of C.A = 1600kg/m^3 Fineness modulus of FA = 2.80 Slump = 50mm Sp. Gravity of Cement = 3.15 Sp. Gravity of CA = 2.70 Sp. Gravity of FA = 2.65 Water absorption of CA = 1% Water absorption of FA = 2% Assume any other essential data.	10	4

7. Attempt any *one* part of the following: 10x1=10

a.	Define ready mix concrete. Explain the components of RMC plant in brief.	10	5
b.	Explain recycled aggregate concrete. Discuss various properties of recycled aggregate concrete.	10	5