PAPER ID-410926

Subject Code: KCE051

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

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 $Ca(OH)_2$ 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

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 cement 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/m3 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 consituents with neat sketch.	10	5