

Enrollment No: \_\_\_\_\_

Exam Seat No: \_\_\_\_\_

# C. U. SHAH UNIVERSITY

## Winter Examination-2020

**Subject Name : Concrete Technology**

**Subject Code : 4TE03CNT1**

**Branch: B.Tech (Civil)**

**Semester: 3**

**Date: 16/03/2021**

**Time: 11:00 To 02:00**

**Marks: 70**

**Instructions:**

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
  - (2) Instructions written on main answer book are strictly to be obeyed.
  - (3) Draw neat diagrams and figures (if necessary) at right places.
  - (4) Assume suitable data if needed.
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<b>Q-1</b>	<b>Attempt the following questions:</b>	<b>(14)</b>
	a) Expand OPC and PPC.	1
	b) Define Specific Gravity of Aggregate	1
	c) Which apparatus is used to measure standard consistency of Cement?	1
	d) Write the formula for Water required for Compressive strength test of cement.	1
	e) Classify aggregates based on shape.	1
	f) Classify aggregates based on texture.	1
	g) Enlist various physical tests for cement.	1
	h) Write the formula for Split Tensile Strength test.	1
	i) Classify Special Concrete	1
	j) What is the importance of workability?	1
	k) Why needle vibrator is used during concrete casting?	1
	l) Draw sketch of true slump.	1
	m) Define durability of concrete.	1
	n) Define fine aggregate.	1

**Attempt any four questions from Q-2 to Q-8:**

<b>Q-2</b>	<b>Attempt all questions</b>	<b>(14)</b>
	a) Distinguish between the grade of cement and grade of concrete.	<b>04</b>
	b) Enlist Bogue's compound of Cement and their role in the hydration process	<b>04</b>
	c) Explain the dry process for the manufacturing of cement.	<b>06</b>
<b>Q-3</b>	<b>Attempt all questions</b>	<b>(14)</b>
	a) Differentiate between fresh concrete and hardened concrete.	<b>04</b>
	b) Discuss segregation and bleeding of concrete briefly.	<b>04</b>
	c) Define workability, enlist factors affecting workability and enlist tests to measure workability.	<b>06</b>
<b>Q-4</b>	<b>Attempt all questions</b>	<b>(14)</b>
	a) Explain the importance of the water-cement ratio on the strength of the concrete.	<b>04</b>



	b)	Classify the various types of admixtures based on their application. Explain water reducing type admixtures in detail.	06
	c)	Define creep. Explain the factors affecting the creep of concrete.	04
<b>Q-5</b>		<b>Attempt all questions</b>	<b>(14)</b>
	a)	Define the permeability of concrete and enlist various factors affecting permeability.	05
	b)	Explain various causes of corrosion of steel in concrete and its remedial measures.	06
	c)	Briefly explain Alkali-aggregate reaction.	03
<b>Q-6</b>		<b>Attempt all questions</b>	<b>(14)</b>
	a)	Enlist various factors affecting the strength of concrete and explain anyone in detail.	07
	b)	Define nominal mix concrete and design mix concrete. Explain step by step procedure of the IS method of mix design.	07
<b>Q-7</b>		<b>Attempt all questions</b>	<b>(14)</b>
	a)	Enlist types of fibers used in fiber reinforced concrete. Also, explain factors affecting properties of fiber-reinforced concrete.	06
	b)	Define Ferro cement briefly.	04
	c)	Differentiate between high strength and high-performance concrete.	04
<b>Q-8</b>		<b>Attempt all questions</b>	<b>(14)</b>
	a)	List various crack repair techniques and explain anyone in detail.	04
	b)	Enlist the types of NDT tests for concrete. Explain the rebound hammer test in detail.	07
	c)	Briefly explain Gel-space ratio.	03

