NARASIMHA REDDY ENGINEERING COLLEGE
(Autonomous)
Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad
Accredited by NAAC with A Grade, Accredited by NBA

CIVIL ENGINEERING

QUESTION BANK

Course Title : CONCRETE TECHNOLOGY

Course Code : CE3102PC

Regulation : NR20

Course Objectives

Concrete is the basic construction material in the advance and present construction industry Lot of advances are taking place in the concrete technology on par with development taking place in the engineering. The present day industry needs the knowledge of concrete technology thoroughly. The subject is designed to give the basic knowledge as well as latest developments in concrete technology.

Course Outcomes (CO's)

After completing this course, the students will be able to:

- Identify quality control tests on concrete making materials.
- Understand the suitability of aggregates as a construction materials.
- Understand the behavior of fresh concrete.
- Determine the strength of hardened concrete.
- Design concrete mixes as per IS and ASI codes and understand the importance of special concrete.

UNIT–I
CEMENT AND ADMIXTURES

S.No	Questions	BT	CO	PO
	Part – A (Short Answer Questions)			
1	What is cement? State the important ingredients in cement with their percentages.	L1	CO1	1
2	State four precautions to be taken while manufacturing of cement.	L1	CO1	1
3	Define the terms a) workability b)hydration	L1	CO1	1
4	State four important properties of cement.	L1	CO1	1
5	What is admixtures and Retarding admixtures.	L1	CO1	1
6	What are the types of admixtures	L1	CO1	1
7	State four precautions to be taken, while storing the cement	L1	CO1	1
8	Define initial setting time and final setting time of cement.	L1	CO1	1
9	Why Gypsum is added while manufacturing of cement	L4	CO1	1
10	What are the functions of admixtures	L1	CO1	1
	Part – B (Long Answer Questions)			

11	a)	State the chemical composition of the cement with their percentage to achieve the desired quality of cement.	L1, L2	CO1	1,2
	b)	State the various functions of ingredients with limitation	L2	CO1	1,2
12	a)	Distinguish about the manufacture of cement by dry process.	L4	CO1	1,2
	b)	Give the properties of cement	L1	CO1	1
13	a)	what is pozzolanic materials and give it's properties,	L1, L2	CO1	1
	b)	Give the advantages and disadvantages of pozzolanic cement	L2	CO1	1,2
14	a)	what is admixture and state functions in concrete.	L1	CO1	1
	b)	State the classification of admixtures for general purposes explain in briefly.	L1. L2	CO1	1
15	a)	Explain the setting time of cement.	L1, L2	CO1	1,2
	b)	Explain Portland pozzolana cement	L2	CO1	1
16	a)	Distinguish the manufacture of cement by wet process.	L4	CO1	1,2 ,6
	b)	Explain Ordinary Portland cement.	L2	CO1	1,2

UNIT–II

AGGREGATES

S.No		Questions	BT	CO	PO
Part – A (Short Answer Questions)					
1		State the classification of aggregate.	L1	CO2	1
2		State the four qualities of mixed water.	L1	CO2	1
3		What is bulking of sand? Explain in four sentences.	L1	CO2	1
4		Write the properties of good concrete.	L1	CO2	1
5		Give the importance of angular aggregates.	L2	CO2	1
6		State (i) specific gravity and (ii) Bulk density (iii) Porosity	L1	CO2	1
7		What do you meant by soundness of aggregate	L1	CO2	1
8		State porosity and moisture content of aggregate	L1	CO2	1
9		What is bulking of sand	L1	CO2	1
10		What is the disadvantage of sea sand in construction field.	L1	CO2	1
Part – B (Long Answer Questions)					
11	a)	Define aggregate? State the various classification of aggregate	L1, L2	CO2	1
	b)	Explain the aggregates on the basis of geological origin.	L2	CO2	1,2
12	a)	Explain briefly the specific gravity test	L2	CO2	1,2 ,5
	b)	Explain briefly Water absorption test.	L2	CO2	1,2 ,5
13	a)	Explain different characteristics of aggregates.	L2	CO2	1,2
	b)	Give a short notes on strength and fineness modulus.	L2	CO2	1,2
14	a)	what is alkali aggregate reaction and what are the factors which affect this reaction.	L1	CO2	1,2
	b)	How to control the alkali-aggregate reaction.	L1, L3	CO2	1,2
15	a)	state the importance of fine and coarse aggregate suitable for the preparation of R.C.C elements of heavy R.C.C structures.	L1, L2	CO2	1,2
	b)	What are the thermal properties of concrete.	L1	CO2	1
16	a)	Explain about sieve analysis of fine aggregate	L1, L2	CO2	1,2 ,5

	b)	What are the tests on aggregates? Explain any one	L2	CO2	1,2 ,5

UNIT–III

FRESH CONCRETE

S.No		Questions	BT	CO	PO
Part – A (Short Answer Questions)					
1		What is concrete and how it is made?	L1	CO3	1
2		What is curing of concrete? State its necessity?	L1	CO3	1
3		Define water cement ratio. How does it influence the concrete strength.	L1	CO3	1
4		What is workability and give it's importance	L1	CO3	1
5		What is grading of concrete?	L1	CO3	1
6		state the various tests for measurement of workability.	L1	CO3	1
7		What is meant by M20 grade concrete	L1	CO3	1
8		What is curing of concrete? State it's necessity	L1	CO3	1
9		What is the value of beam and slab slumps	L1	CO3	1
10		What is the purpose of mixing of water in concrete?	L1	CO3	1
Part – B (Long Answer Questions)					
11	a)	what are the various types of concrete used in the construction works? Explain any one	L2	CO3	1,2
	b)	Describe the procedure for preparing concrete.	L2	CO3	1
12	a)	what are the various factors affecting the workability of concrete. Explain briefly?	L2	CO3	1,2
	b)	State the various methods of measurement of workability?	L1	CO3	1,2
13	a)	what are the various methods of transporting the concrete?.	L2	CO3	1,2
	b)	Discuss various methods of placing concrete. what precautions should be taken during placing	L2, L3	CO3	1,7
14	a)	what are the various methods of measurement of workability?	L1	CO3	1,2
	b)	Distinguish workability and consistency of concrete	L4	CO3	1,2
15	a)	what are the requirements of good concrete	L1	CO3	1,2
	b)	describe the factors affecting the strength of concrete	L2	CO3	1
16	a)	Write a short notes on the following i) Bleeding ii) vibrators iii) Accelerated curing iv) concrete mixer v) Light weight concrete.	L1	CO3	1
	b)	Distinguish the merits and demerits of hand compaction and compaction by machine vibrator.	L4	CO3	1

UNIT–IV

HARDENED CONCRETE AND TESTING OF HARDENED CONCRETE

S.No	Questions	BT	CO	PO
Part – A (Short Answer Questions)				
1	What is gel-space ratio.	L1	CO4	1
2	State four factors affecting the strength of concrete.	L1	CO4	1
3	Define Duff Abrahm's law relating to cement concrete.	L1	CO4	1
4	State necessity of curing for cement concrete.	L1	CO4	1
5	State six principle properties of hardened concrete	L1	CO4	1
6	What is modulus of elasticity	L1	CO4	1
7	Define creep and shrinkage	L1	CO4	1
8	Classify NDT tests	L1	CO4	1
9	What is maturity concept	L1	CO4	1

10		What is the effect of water/cement ratio.	L1	CO4	1
Part – B (Long Answer Questions)					
11	a)	Explain Flexural strength of concrete.	L2	CO4	1,2,
	b)	Explain tensile strength of concrete	L2	CO4	1,2
12	a)	Define Maturity of concrete and Explain the maturity of concrete concept.	L1, L2	CO4	1,2
	b)	The strength of a fully matured concrete sample is found to be 500kg/cm^2. Find the strength of identical concrete at age of 7days when cured at an average of 20 ^{o} C in day and 10^{o}C in night.	L4	CO4	1,2
13	a)	What are the factors influencing creep.	L2	CO4	1
	b)	The strength of a fully matured concrete sample is found to be 550kg/cm^2. Find the strength of identical concrete at age of 7days when cured at an average of 20 ^{o} C in day and 10^{o}C in night.	L4	CO4	1,2
14	a)	Define strength of concrete and classify the different tests conducted for hardened concrete.	L2	CO4	1,2
	b)	Explain the compressive strength of concrete.	L2	CO4	1,2
15	a)	Explain the procedure to find out the compressive strength of concrete cube mould.	L2	CO4	1,2, 5
	b)	What are the factors influencing shrinkage	L2	CO4	1
16	a)	Explain rebound hammer test	L1, L2	CO4	1,2, 5
	b)	Give a short notes on creep and shrinkage	L1	CO4	1

UNIT–V

MIX DESIGN AND SPECIAL CONCRETE

S.No		Questions	BT	CO	PO
Part – A (Short Answer Questions)					
1		Define concrete mix design	L1	CO5	1
2		Define proportioning of concrete	L1	CO5	1
3		Discuss briefly the following with regards to mix design. a) workability b) strength	L1	CO5	1
4		Define target mean strength and controlled concrete.	L1	CO5	1
5		State the advantages of roller compacted concrete in construction industry	L1	CO5	1
6		What is light weight concrete	L1	CO5	1
7		State high density concrete	L1	CO5	1
8		State four applications of ferro cement.	L1	CO5	1
9		What is underwater concreting	L1	CO5	1
10		Define shotcrete and ferro cement?	L1	CO5	1
Part – B (Long Answer Questions)					
11	a)	What are the special features of transportation of ready mixed concrete from the plant to the site?	L2	CO5	1,5
	b)	What are the factors involved in mix proportions.	L2	CO5	1
12	a)	What special features are to be considered while handling and placing ready mixed concrete.	L3	CO5	1,5
	b)	Distinguish about high performance concrete.	L4	CO5	1,2
13	a)	Explain what is mix design and it's practical necessity.	L2	CO5	1,4
	b)	Write about self-compacting concrete	L2	CO5	1,2
14	a)	Explain salient features of fibre reinforced concrete.	L2	CO5	1

	b)	Explain various aspects to be considered in fibre reinforced concrete	L1, L2	CO5	1,2
15	a)	Define concrete mix design and state the principles of mix design.	L1, L2	CO5	1,3
	b)	Explain polymer concrete and geo polymer concrete	L2	CO5	1,2
16	a)	What are the acceptance criteria of the concrete? Discuss briefly how the quality of concrete is controlled.	L1, L2	CO5	1,2
	b)	Explain the need of fibre reinforced concrete	L2	CO5	1

* **Blooms Taxonomy Level (BT)** (L1 – Remembering; L2 – Understanding; L3 – Applying; L4 – Analyzing; L5 – Evaluating; L6 – Creating)

Course Outcomes (CO)

Program Outcomes (PO)

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