



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad -500 043

ASSIGNMENT QUESTIONS

(CIVIL ENGINEERING)

Course Title	:	CONCRETE TECHNOLOGY			
Course Code	:	A50116			
Regulation	:	R15(JNTUH)			
Class	:	III - B. Tech, I Sem			
Course Structure	:	Lectures	Tutorials	Practical's	Credits
		4	-	-	4
Course Coordinator	:	Mr N Venkat Rao, Assistant Professor, Civil Engineering			
		Mr Suraj Baraik, Assistant Professor, Civil Engineering			
Team of Instructors	:	Mr. Suraj Baraik, Assistant Professor, Civil Engineering			
		Mr N Venkat Rao, Assistant Professor, Civil Engineering			

OBJECTIVES

To meet the challenge of ensuring excellence in engineering education, the issue of quality needs to be addressed, debated and taken forward in a systematic manner. Accreditation is the principal means of quality assurance in higher education. The major emphasis of accreditation process is to measure the outcomes of the program that is being accredited. In line with this, Faculty of Institute of Aeronautical Engineering, Hyderabad has taken a lead in incorporating philosophy of outcome based education in the process of problem solving and career development. So, all students of the institute should understand the depth and approach of course to be taught through this question bank, which will enhance learner's learning process.

S.no.	QUESTION	BLOOM'S TAXONOMY LEVEL	COURSE OUTCOME
UNIT I CEMENT AND ADMIXTURES			
1	What is the chemical composition of cement?	Remember	1
2	List various types of cement.	Remember	1
3	What is grade of cement? List any three grades of cement with their strengths.	Understand	2
4	Give step by step method of manufacture of cement by wet process.	Understand	3
5	What is the common classification of aggregates?	Understand	3
6	What is the maximum amount of dust which may be permitted in aggregates?	Remember	2
7	On which factors the bulk density of aggregates does not depend upon?	Remember	1
8	How does alkali aggregate reaction affect concrete?	Remember	1
9	If 20 kg of coarse aggregate is sieved through 80 mm, 40 mm, 20 mm, 10 mm, 4.75 mm, 2.36 mm, 1.18 mm, 600 micron, 300 micron and 150 micron standard sieves and the weights retained are 0 kg, 2 kg, 8 kg, 6 kg, 4 kg respectively, what is the fineness modulus of the aggregate?	Understand	2

10	If X, Y and Z are the fineness moduli of coarse, fine and combined aggregates, what is the percentage (<i>P</i>) of fine aggregates to combined aggregates?	Understand	1
UNIT II FRESH CONCRETE			
1	What is meant by proportioning of concrete?	Understand	1
2	Can sea water be used for making concrete? Explain.	Understand	2
3	What is meant by curing of concrete?	Understand	2
4	What is meant by controlled concrete?	Understand	1
5	Define Workability.	Remember	2
5	What is segregation and how can it be prevented?	Understand	3
6	What is bleeding and how can it be prevented?	Understand	2
7	How does freeze-thaw damage occur?	Understand	1
8	What is alkali-aggregate reaction? Explain.	Understand	3
9	Define re-vibration. What are the various vibration techniques used for concrete vibration?	Remember	2
UNIT III HARDENED CONCRETE			
1	Define Water/cement ratio.	Remember	1
2	What is meant by gel-space ratio?	Understand	2
3	Why is Elastic Modulus Important for Concrete?	Understand	4
4	Define Shrinkage cracking	Remember	2
5	Define Tension cracking	Remember	4
6	Explain nondestructive tests. What are the codal provisions for NDT	Understand	2
7	Write a short note on: a. Elasticity of concrete b. Shrinkage	Remember	4
8	Write a short note on: a. Creep b. Durability of concrete	Remember	1
9	In concrete compression test, normally 150mmx150mmx150mm concrete cube samples are used for testing. Why isn't 100mmx100mmx100mm concrete cube samples used in the test instead of 150mmx150mmx150mm concrete cube samples?	Understand	1
10	Is it desirable to use concrete of very high strength i.e. exceeding 60MPa? What are the potential problems associated with such high strength concrete?	Understand	1
UNIT IV MIX DESIGN			
1	Define Concrete Durability.	Remember	4
2	Define concrete mix design.	Remember	5
3	What are the factors influencing the selection of materials?	Understand	1
4	Design the concrete mix for the following data: characteristic compressive strength= 20MPa, maximum size of aggregate = 20mm (angular), Degree of workability = 0.9 CF, Degree of quality control = good and type of exposure = severe. Water absorption by CA = 0.5% and moisture content in FA = 2.0%. Assume any suitable missing data.	Understand	1
5	Design the concrete mix for the following data: characteristic compressive strength = 35MPa, maximum size of aggregate = 20mm (angular), Degree of workability = 0.9 CF, Degree of quality control = good and type of exposure = severe. Water absorption by CA = 1% and moisture content in FA = 1.5%. Assume any suitable missing data.	Understand	1

6	Design the concrete mix for the following data: characteristic compressive strength=35mpa, maximum size of aggregate =20mm (angular), degree of workability=0.9CF, degree of quality control =good and type of exposure=severe. Water absorption by CA=1% and moisture content in FA =1.5%. Assume any suitable missing data .	Understand	2
7	Design the concrete mix for the following data: characteristic compressive strength=20mpa, maximum size of aggregate =20mm (angular), degree of workability =0.9CF, degree of quality control =good and type of exposure=severe. Water absorption by CA =0.5% and moisture concrete FA=2.0%. Assume any suitable missing data.	Understand	3
8	What are the Requirements of concrete mix design as per BIS?	Remember	1
9	What are the types of concrete mixes? Explain.	Understand	1
10	What are the Factors affecting the choice of mix proportions?	Understand	1
UNIT V SPECIAL CONCRETES			
1	Define Aerated Concrete	Remember	1
2	What is the general use of Shotcrete?	Remember	2
3	What is meant by No fine concrete?	Remember	3
4	What do you mean by Fibre Reinforced Concrete?	Remember	1
5	Define ferro-cement.	Remember	1
6	What is self-compacting concrete?	Remember	4
7	Distinguish between light weight concrete and high density concrete.	Understand	1
8	What are the different types fibres used in FRC and how do they affect the properties of concrete?	Understand	2
9	Distinguish between high performance concrete and self compacting concrete.	Understand	1
10	Distinguish between self consolidating concrete and conventional concrete.	Understand	1

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