PVP 20

Code: 20CE6401

II B.Tech - II Semester – Regular Examinations – MAY 2023

ADVANCED CONCRETE TECHNOLOGY
(HONORS in CIVIL ENGINEERING)

Duration: 3 hours Max. Marks: 70

Note: 1. This paper contains questions from 5 units of Syllabus. Each unit carries 14 marks and have an internal choice of Questions.
2. All parts of Question must be answered in one place.

BL – Blooms Level CO – Course Outcome

			BL	CO	Max. Marks
UNIT-I					
1	a)	Discuss about different types of cements used in the field application and also explain about the field tests and laboratory tests on cement?	L2	CO1	7 M
	b)	Make use of size, shape and texture to decide the different type of aggregates and how each of these are affecting the strength of concrete?	L2	CO1	7 M
OR					
2	a)	Explain in detail about the specific gravity, bulk density, porosity and moisture content of aggregates?	L2	CO1	7 M
	b)	Outline the effects of mineral admixtures and chemical admixtures on fresh and hardened properties of concrete?	L2	CO1	7 M

UNIT-II					
3	a)	Develop a relation of flexural strength, tensile strength, modulus of elasticity with respect to characteristics strength of concrete?	L2	CO2	7 M
	b)	List out the various factors affecting the workability and explain them?	L2	CO2	7 M
OR					
4	a)	Explain mix design of concrete? Elaborate various factors to be considered for mix design of concrete?	L2	CO2	7 M
	b)	List out various steps involved in evaluation of compressive and tensile strength of concrete from preparation of sample to testing?	L2	CO2	7 M
UNIT-III					
5	a)	Classify different Light weight concrete based on mix proportion, application and properties?	L2	CO3	7 M
	b)	Examine no fines concrete? Explain the advantages of the no fines concrete over ordinary concrete?	L2	CO3	7 M
OR					
6	a)	Design a concrete mix for M20 grade of concrete using IS:10262: 2019 guidelines and with the following data: Cement type : OPC 53 grade Specific gravity of cement : 3.15	L4	CO3	14 M

		Max. nominal size of aggregate: 20 mm Specific gravity of Coarse agg. : 2.65 Specific gravity of Fine agg. : 2.60 Type of Exposure : Severe Slump required : 100 mm Fine aggregate confirms to Zone – III Assume any suitable data if required.			
		UNIT-IV			
7	a)	Outline about different types polymer concrete and describe the advantages of polymers concrete?	L2	CO4	7 M
	b)	Summarize about fibre reinforced concrete and explain the factor affecting the properties Fiber reinforced concrete?	L2	CO4	7 M
		OR			
8	a)	Explain about high volume fly ash concrete and write about its composition and applications?	L2	CO4	7 M
	b)	Explain about various types of fibres used in FRC?	L2	CO4	7 M
		UNIT-V			
9		Explain the need for self compacting concrete. Mention its properties. What are different test methods for determining the fresh properties of SCC?	L2	CO5	14 M
		OR			

10	a)	Explain in detail about High performance concrete and its applications	L2	CO5	7 M
	b)	Illustrate about High density concrete and its applications	L2	CO5	7 M