



P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Third Semester, B.E. - Civil Engineering

Make-up Examination; May - 2022

Concrete Technology

Time: 3 hrs

Max. Marks: 100

Course Outcomes

The Students will be able to:

CO1: Apply the knowledge of science and engineering to acquire the fundamentals of cement, aggregates and admixtures.

CO2: Conduct investigations to select suitable materials for concrete.

CO3: Design special concrete as per selected codes.

CO4: Apply the concept of durability of concrete for sustainability.

Note: I) PART - A is compulsory. Two marks for each question.

II) PART - B: Answer any **Two** sub questions (from a, b, c) for a Maximum of **18 marks** from each unit.

Q. No.	Questions	Marks	BLs	COs	POs
I : PART - A		10			
I a.	Define hydration of cement.	2	L1	CO1	PO1
b.	What are the factors affecting workability of concrete?	2	L1	CO2	PO4
c.	Define modulus of rupture.	2	L1	CO4	PO7
d.	What is sulphate attack in concrete?	2	L1	CO4	PO7
e.	What are the components of light weight concrete?	2	L1	CO3	PO3
II : PART - B		90			
UNIT - I		18			
1 a.	Name the Bogue's compounds. Explain their role in strength development.	9	L1,L2	CO1	PO1
b.	What are different laboratory tests conducted on cement in the laboratory? Explain any one of them in detail.	9	L1,L2	CO1	PO1
c.	Explain the following:				
	i) Setting time of cement	9	L2	CO1	PO1
	ii) Aggregate crushing value				
	iii) Flakiness and Elongation index				
UNIT - II		18			
2 a.	Explain plasticizers, accelerator and retarders.	9	L2	CO1	PO1
b.	What is workability of concrete? List the factors affecting on workability and explain any one.	9	L1,L2	CO2	PO4
c.	Write a note on the following:				
	i) Batching	9	L2	CO2	PO4
	ii) Mixing of concrete				
	iii) Transporting of concrete				

UNIT - III**18**

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| 3 a. Explain the following: | | | | |
| i) Maturity of concrete | 9 | L2 | CO3 | PO7 |
| ii) Creep of concrete | | | | |
| iii) Modulus of rupture | | | | |
| b. Explain the different types of shrinkage in concrete. | 9 | L2 | CO4 | PO7 |
| c. Explain the rebound hammer test and ultrasonic pulse velocity test. | 9 | L3 | CO | PO7 |

UNIT - IV**18**

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| 4 a. Write short note on RMC. | 9 | L2 | CO3 | PO3 |
| b. Write short note on; | | | | |
| i) Self compacting concrete | 9 | L2 | CO3 | PO3 |
| ii) High volume fly ash concrete | | | | |
| c. Discuss the effect of; | | | | |
| i) Acid attack | 9 | L2 | CO4 | PO3 |
| ii) Efflorescence | | | | |
| iii) Sulphate attack | | | | |

UNIT - V**18**

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| 5 a. Write short note on; | | | | |
| i) High performance concrete | 9 | L2 | CO3 | PO7 |
| ii) Roller compacted concrete | | | | |
| iii) Light weight concrete | | | | |
| b. List and explain the factors affecting properties of fiber reinforced concrete. | 9 | L2 | CO3 | PO7 |
| c. Write a note on Geo-Polymer concrete. | 9 | L2 | CO3 | PO7 |

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