



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

(An Autonomous Institution affiliated to VTU, Belagavi)

## Third Semester, B.E. - Civil Engineering Semester End Examination; March - 2021 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 Maximum of **18 marks** from each unit.

Q. No.	Questions	Marks	BLs	COs	POs
<b>I : PART - A</b>		<b>10</b>			
I a.	List the Bogue's compound.	2	L1	CO1	
b.	Define Workability.	2	L1	CO2	
c.	Define GELL space ratio.	2	L1	CO3	
d.	Define Durability.	2	L1	CO4	
e.	What is the density value of light weight concrete?	2	L2	CO5	
<b>II : PART - B</b>		<b>90</b>			
<b>UNIT - I</b>		<b>18</b>			
1 a.	Explain; i) Normal consistency test ii) Fineness of cement test	9	L2	CO1	
b.	Explain; i) Sieve analysis test for fine aggregate ii) Specific gravity test for fine aggregate	9	L2	CO1	
c.	Explain; i) Flakiness index test for coarse aggregate ii) Los angles Abrasion test for coarse aggregate	9	L2	CO1	
<b>UNIT - II</b>		<b>18</b>			
2 a.	Discuss the factors affecting workability.	9	L2	CO2	
b.	Discuss the methods of transportation of concrete.	9	L2	CO2	
c.	Write a short note on Accelerator, Flyash.	9	L1	CO2	
<b>UNIT - III</b>		<b>18</b>			
3 a.	Explain the maturity concept of concrete.	9	L2	CO3	
b.	Define shrinkage. Explain the factors affecting shrinkage.	9	L2	CO3	
c.	Define Creep. Explain the factors affecting Creep.	9	L2	CO3	

**UNIT - IV****18**

- |      |   |   |    |     |
|------|---|---|----|-----|
| 4 a. | Explain with neat sketch, under water concreting using Tremie method. | 9 | L2 | CO4 |
| b.   | Discuss the methods of controlling sulphate attack.                   | 9 | L2 | CO4 |
| c.   | Explain the corrosion of steel.                                       | 9 | L2 | CO4 |

**UNIT - V****18**

- |      |  |   |    |     |
|------|--|---|----|-----|
| 5 a. | List the applications of polymer impregnated concrete.                 | 9 | L1 | CO5 |
| b.   | Explain; i) Roller compacted concrete<br>ii) High performance concrete | 9 | L2 | CO5 |
| c.   | Explain; i) Geopolymer concrete<br>ii) Translucent concrete            | 9 | L2 | CO5 |

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