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**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; Dec. - 2019**
**Concrete Technology**

Time: 3 hrs

Max. Marks: 100

**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
<b>I : PART - A</b>		<b>10</b>
I a.	List the compound composition of OPC.	2
b.	What are the factors affecting workability of concrete?	2
c.	Point out the significance of maturity concept of concrete.	2
d.	Define creep of concrete.	2
e.	What are the components of Geo-polymer concrete?	2
<b>II : PART - B</b>		<b>90</b>
<b>UNIT - I</b>		<b>18</b>
1 a.	Explain the following:	9
	i) Setting time of cement    ii) Normal consistency of cement    iii) Bulking of sand	
b.	List out the types of cement and explain any three.	9
c.	Explain the significance of,	9
	i) Grading of aggregates    ii) Size of aggregates    iii) Shape and texture of aggregates	
<b>UNIT - II</b>		<b>18</b>
2 a.	What causes the concrete to segregate? What measures are taken to solve segregation problem?	9
b.	What is workability of concrete? What is the effect of aggregate size on workability?	9
c.	What are mineral admixtures? What is their role in concrete?	9
<b>UNIT - III</b>		<b>18</b>
3 a.	Explain the factors affecting the strength of hardened concrete.	9
b.	Explain the principle of Rebound Hammer test. What are the limitations of Rebound Hammer test?	9
c.	Differentiate between:	
	i) Modulus of rupture and modulus of elasticity	9
	ii) Plastic shrinkage and drying shrinkage	
	iii) Creep and shrinkage	

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

- 4 a. Discuss the effect of, i) Acid attack, ii) Permeability of concrete, iii) Environmental conditions on durability of concrete. 9
- b. Write short note on SCC. 9
- c. Write short note on RMC. 9

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

- 5 a. List the factors affecting properties of fiber reinforced concrete. 9
- b. Write note on Geo-polymer concrete. 9
- c. Under what circumstances the following concrete are specifically used,
- i) Light weight concrete 9
- ii) Roller comported concrete
- iii) Fiber reinforced concrete

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