

Name:  
Enrolment No:



**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**END Semester Examination DECEMBER 2022**

**Course Name: Concrete Technology**

**Semester: III**

**Program: B. Tech (Civil Engg.)**

**Time: 03 hrs.**

**Max. Marks: 100**

**Instructions: Answer all the questions**

**Course Code: CIVL 2011**

**SECTION A**

S. No.		Marks	CO
Q.1	Briefly explain four physical properties of OPC.	4M	CO1
Q.2	State the advantage of Lightweight concrete over conventional concrete.	4M	CO5
Q.3	Briefly explain to control Alkali-Aggregate reaction in concrete.	4M	CO2
Q.4	List four factors affecting durability of concrete.	4M	CO4
Q.5	What do you mean by Nominal & design mix	4M	CO3

**SECTION B**

Q.6	Discuss & compare the role of C <sub>3</sub> S, C <sub>2</sub> S, C <sub>3</sub> A & gypsum in governing the properties of concrete with proper diagrams.	10M	CO1
Q.7	What is ferrocement? Explain the advantages & applications of ferrocement techniques.	10M	CO4
Q.8	What is Grading of Aggregate? Explain the Importance of size, shape & texture with respect to coarse aggregate.	10M	CO2
Q.10	Briefly explain the Rebound hammer test & Ultrasonic Pulse velocity test. OR What is NDT of concrete? Explain any one method of NDT with sketch in detail.	10M	CO5

**SECTION-C**

Q.11	Explain the significance of Concrete mix design & write the steps involved in concrete mix design as per IS Code and discuss the variables in proportioning of concrete.	20M	CO3
Q.12	What do you mean by workability of concrete? What are various factors affecting workability. Explain the various test related to workability with their advantage & disadvantage OR Explain "Maturity of concrete". The strength of sample of fully matured concrete found to be 40Mpa. Find the strength of identical concrete at the age of 7 days when cured at an average temperature during daytime at 20 <sup>0</sup> C & nighttime at 10 <sup>0</sup> C. Take A = 32 & B = 54. Use % strength of concrete at maturity is = A+ B log <sub>10</sub> (Maturity/100)	20M	CO2