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**Code: 19B12ET**

M.Tech. II Semester Supplementary Examinations March 2021

**Advanced Concrete Technology**

( Structural Engineering )

Max. Marks: 60

Time: 3 Hours

Answer all five units by choosing one question from each unit ( 5 x 12 = 60 Marks )

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Marks

**UNIT-I**

1. a) Recommend the situations or applications in which you will suggest the use of Rapid Hardening cement, Low heat cement, High alumina cement. 6M
- b) Mention any three important properties of aggregates and justify your answer. 6M

**OR**

2. a) Differentiate between OPC, PPC, and PSC. Also give reasons why PPC and PSC are recommended mostly to be used? 6M
- b) Discuss about the significant property of aggregates to be used for refractory concrete and High density concrete. 6M

**UNIT-II**

3. UPV Results of fly ash admixed concrete on various days are displayed in Table 1. Discuss the attainment of quality of concrete with respect to percentage replacement and days of curing.

Table 1

Fly ash replacement	28 days	56 days	90 days	180 days	360 days
0%	4.50	4.50	4.50	4.50	4.50
10%	4.10	4.45	4.55	4.66	4.66
20%	4.00	4.38	4.49	4.57	4.63
30%	3.85	4.19	4.32	4.47	4.71
40%	3.60	4.00	4.22	4.37	4.58
50%	3.30	3.75	3.95	4.08	4.52

12M

**OR**

4. Illustrate the effects of air entraining agents on properties of concrete in its fresh and hardened state. 12M

**UNIT-III**

5. Differentiate between High Strength Concrete and Super-High Strength HPC in terms of constituent materials used, strength and practical applications. 12M

**OR**

6. Discuss the mechanical and durability properties achieved using HPC and ultra HPC. 12M

**UNIT-IV**

7. A client approached you to conduct the condition assessment of his building which is of 25 years old and he wants to build another floor above it. What are the ways in which you will carry the assessment with NDT methods? 12M

**OR**

8. Enlist the durability tests conducted on concrete. Elaborate the rebound hammer, UPV, Half-cell potential tests with neat sketch. 12M

**UNIT-V**

9. Why it is necessary to find the lateral pressure in form work due to concreting? Discuss in detail about a commonly used method of finding the lateral pressure in form work due to concreting. 12M

**OR**

10. Explain with a neat sketch the form work for a shell structure. What do you think that causes the failure of form work? 12M

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