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G.R. No.	
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PAPER CODE	U 321-221 (ESE)
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**May 2022 (ENDSEM) EXAM**  
**T.Y. B. TECH. (Civil) (SEMESTER - II)**  
**COURSE NAME: Advanced Concrete Technology**  
**COURSE CODE:(CVUA32181C) Professional Elective II**  
**(PATTERN 2018)**

Time: [1Hr]

[Max. Marks: 30]

**(\*) Instructions to candidates:**

- 1) Figures to the right indicate full marks.**
- 2) Use of scientific calculator is allowed**
- 3) Use suitable data where ever required**

Q.1 a) Determine characteristic strength, water to cement ratio for the following data. [4]

*Design strength M 30, 10mm size of aggregate, slump 100 mm, chemical admixture 2%, coarse and fine aggregate zone II, sp. Gravity of cement and aggregate 3.15 and 2.75* [6]

b) Determine cement content, volume of coarse aggregate and fine aggregate, mix calculation and proportion for the following data.

*Design strength M30, 10mm size of aggregate, slump 100 mm, chemical admixture 2%, coarse and fine aggregate zone II, sp. Gravity of cement and aggregate 3.15 and 2.75* [6]

**OR**

b) Write down design steps in detailed for M30 of concrete.

Q2 a) What is structural health monitoring [4]



...2...

b) Explain in details Ultra sonic pulse velocity method [6]

**OR**

b) Explain in details stress wave propagation method [6]

Q.3 a) Explain concept of corrosion in concrete [4]

b) What are different methods of structural strengthening of concrete [6]

**OR**

b) Elaborate failure mechanism of concrete. [6]