

**School of University Polytechnic**

**Diploma in Civil Engineering  
Semester End Examination - Aug 2024**

**Duration : 180 Minutes  
Max Marks : 100**

**Sem V - N1DB501T - Design of Reinforced Cement Concrete Structure**General Instructions

*Answer to the specific question asked*

*Draw neat, labelled diagrams wherever necessary*

*Approved data hand books are allowed subject to verification by the Invigilator*

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|-----|--|--------|
| 1)  | tell us : the primary purpose of prestressing in concrete?   | K1(2)  |
| 2)  | Explain grade of steel and different grade of concrete.  | K2(4)  |
| 3)  | Describe the advantages and disadvantages of prestressed concrete over Concrete?   | K2(6)  |
| 4)  | Sketch stress strain curve for mild steel.   | K3(9)  |
| 5)  | Show the technique of pretensioning and post tensioning using diagram.   | K3(9)  |
| 6)  | Solve to calculate factored design load of a beam with following data: 1. width =350mm 2. depth =400mm 3. Live load= 4.2kN/m 4. Grade of concrete M20 and Grade of steel Fe415                                     | K5(10) |
| 7)  | Break down the use of singly reinforced beam and draw its diagram  | K4(12) |
| 8)  | Solve to calculate the depth of neutral axis for beam having width 300mm, depth 450mm and reinforcement provided is 3 bars of 20mm diameter. comment on the type of section. Use M25, Fe 250 and IS 456:2000 code. | K5(15) |
| 9)  | Research about prestressed concrete and its types  | K5(15) |
| 10) | Design a RCC column designed to support an ultimate axial load of 1400kN with size 220mm ×370mm. Use M20 and Fe415. Assume $e_{min} < 0.05D$ .   | K6(18) |