

CONSTRUCTION ENGINEERING PRACTICES -MINOR I

Time allowed 1 hour  
VLT1

Maximum Marks 30  
29.08.2013

ANSWER ALL QUESTIONS. DRAW CLEAR SKETCHES TO EXPLAIN YOUR ANSWER WHERE EVER REQUIRED. BE BRIEF AND ANSWER TO THE POINT. ASSUME MISSING DATA SUITABLY IF REQUIRED.

Short Answer Type Questions (5x 2= 10 marks)

1. What is a flying formwork? Discuss its advantages and limitations.
2. Give briefly the functions of following slipform components (a) Yoke Legs (b) Yoke Beams, (c) Climbing Rod, (d) Walkway Brackets (Inside and Outside)
3. What is a tunnel formwork? Provide a neat sketch and label various components.
4. Why pressure on side forms are less in slipform compared to pressure on wall form in conventional construction? Why is batter provided in constructing form for slipform?
5. Mention the requirements of a formwork system.

Long Answer Type Questions (2 x 10=20 marks)

6.
  - a. Show the formwork arrangement through a neat sketch for a flat slab of thickness 200mm supported on 400mm x 400mm RC column spaced at 4 m centre to centre by calculating the spacing of primary and secondary beams. Plywood of 12mm thickness, H-16 Beams are available
  - b. If the capacity of shores is 30 kN, at what spacing you will place them. Assume the following: Concrete density  $25\text{kN/m}^3$ ; For 12 mm plywood, consider the following: Allowable moment carrying capacity =  $0.2\text{ kN-m/m}$  Allowable shear =  $6.16\text{ kN/m}$ ; Permissible  $EI = 1.1\text{ kNm}^2/\text{m}$ ; Permissible deflection =  $0.730\text{ mm}$  For H-16 beam, consider the following: Depth of H-16 beam =  $160\text{ mm}$ ; Flange of H-beam =  $65\text{ mm}$ ; Allowable moment carrying capacity =  $3\text{ kNm}$ , Allowable shear =  $6\text{ kN}$ ; Permissible  $EI = 145\text{ kNm}^2$ ; Permissible deflection =  $L/360 = 3.33\text{mm}$ .

7. A construction technique using two levels of shores and one level of reshores is proposed in a multistory building construction. Concrete curing temperature of  $T = 22.8^\circ\text{C}$  is used. A construction cycle of 7 days per floor and stripping time of 5 days is proposed. Determine the loads on the slabs, shores, and reshores at different levels during construction and show them on sketches. For the load determination, neglect the live load, and self-weight of shores and reshores. Compute the loads on days 7, 14, 19, 21, 26, 28, and 33. Narrate the steps after computing loads to check the safety of slabs