



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal-500043, Hyderabad

B.Tech VI SEMESTER END EXAMINATIONS (REGULAR) - JULY 2023

Regulation: UG-20

ESTIMATION COSTING AND VALUATION

Time: 3 Hours

(CIVIL ENGINEERING)

Max Marks: 70

Answer ALL questions in Module I and II

Answer ONE out of two questions in Modules III, IV and V

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

MODULE – I

1. (a) Describe in detail the estimate and discuss the factors to be considered for the estimate.
[BL: Understand| CO: 1|Marks: 7]
- (b) Prepare a preliminary estimate for a 3 storeyed RCC framed residential building to be built in Delhi in June 1995 adopting cost index as 128:
 - i) Carpet area: 400 sqm for every floor.
 - ii) Area for circulation toilets, staircase: 18% for each floor. (or of Builtup area)
 - iii) Walls & columns area: 15% of the built-up area.
 - iv) Special Arch. treatment: 1% of the built-up area (or cost).
 - v) Provision for services: 30%
 - vi) Establishment charges: 3% of the building cost.
 - vii) Contingencies T&P: 3% of the building cost. [BL: Apply| CO: 1|Marks: 7]

MODULE – II

2. (a) Describe the methods of preparing estimate for road and canal work
[BL: Understand| CO: 2|Marks: 7]
- (b) Calculate the quantity of earth work by using mid section area method, mean sectional area method and prisomoidal formula for 300m length of a portion of a road in an uniform ground, the rights of banks of the two ends being 1.40m and 2.00m. The formation width is 12m and side slopes 2:1 (Horizontal: Vertical). Assume that there is no transverse slope.
[BL: Apply| CO: 2|Marks: 7]

MODULE – III

3. (a) Discuss the challenges faced during bar bending for complex structural elements, such as curved beams or irregularly shaped columns
[BL: Understand| CO: 3|Marks: 7]
- (b) Calculate the rate analysis for 10 cum of reinforced cement concrete work 1:1.5:3 excluding the cost of centering & shuttering and reinforcement in Foundations, footings, base of column and mass concrete etc.
[BL: Apply| CO: 3|Marks: 7]
4. (a) Summarize the process of rate analysis in construction projects. Discuss the factors that affect the rates of various items of work.
[BL: Understand| CO: 4|Marks: 7]

- (b) Figure 1 shows the section along the shorter span of a room of size 4 x 5.5 m (internal dimension). The thickness of the slab is 13 cm. The thickness of walls is 40 cm. Prepare bar bending schedule.

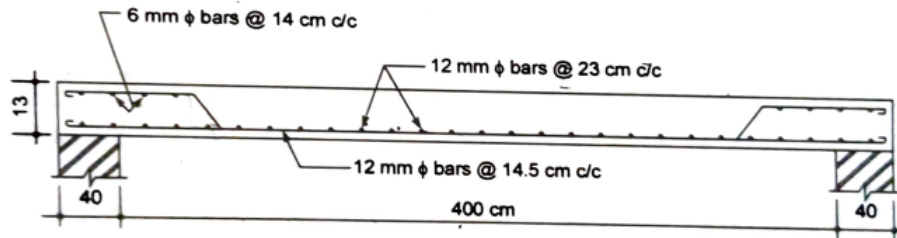


Figure 1

[BL: Apply| CO: 4|Marks: 7]

MODULE – IV

5. (a) Write the main essential requirements of a valid contract document, and explain in detail. [BL: Understand| CO: 5|Marks: 7]
- (b) In a bid document for a building construction project, the contractor is required to submit the performance bond as per the contract conditions. The project cost is Rs. 10,000,000, and the performance bond is set at 5% of the project cost. Calculate the value of the performance bond that needs to be submitted with the bid. [BL: Apply| CO: 5|Marks: 7]
6. (a) Mention the different types of contracts in detail. Why and when the termination of contract will be done? [BL: Understand| CO: 5|Marks: 7]
- (b) Discuss the key specifications and details required for the preparation of the bill of quantities and bidding process in construction projects. Highlight the significance of these specifications in ensuring accurate cost estimation, effective project management, and successful contract procurement. [BL: Apply| CO: 5|Marks: 7]

MODULE – V

7. (a) List the different methods of determining value of property. List the main objectives of valuation of property. [BL: Understand| CO: 6|Marks: 7]
- (b) Determine the present value of the building, which was constructed 35 years ago at Rs. 35,000. The estimated life of the building is 80 years, at the end of which it will have 10% scrap value of its cost of construction. By using straight line method and constant percentage method. [BL: Apply| CO: 6|Marks: 7]
8. (a) Summarize about the income approach to property valuation. Discuss the key components involved in this method, such as potential income, capitalization rates, and net operating income. [BL: Understand| CO: 6|Marks: 7]
- (b) The building has been rented on an annual rent of 4800. The life of the building in the present position is expected to be 12 year. If the major repairs to the building are done, its life shall be increased by another 15 years. The major repairs will cost 25,000. Determine if it will be economical to do the major repair of the building or not. Assume the rate of interest as 6%. [BL: Understand| CO: 6|Marks: 7]