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15ENG/ARC4.6

## Fourth Semester B.Arch. Degree Examination, June/July 2019 Specification, Quantity and Costing of Buildings

Time: 3 hrs.

Max. Marks: 100

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

- 1 Answer the following:
- Write briefly on cubic rate or cubic meter method of estimate. (03 Marks)
  - Write briefly on typical Bay method of estimate. (03 Marks)
  - Which approximate method of estimate is used to establish cost of proposed school building and factory building? (02 Marks)
  - Rs.20,00,000 is spent to construct 125 sqmt of office building in ground floor with Rs.5,50,000 spent towards foundation cost. It is decided to built an addition of 60sqmt on the first floor during the same period with its height between floor to top of roof being 3mt.
    - Calculate cost per sqmt of the construction in the ground floor. (04 Marks)
    - Calculate cost per cumt of the construction in the first floor. (08 Marks)

OR

- 2 Answer the following:
- Write brief specification for item-Earthwork in excavation for foundation trenches in Hard soil. (06 Marks)
  - Write 5 sources of information for writing specification. (07 Marks)
  - Mention 3 advantages and 3 disadvantages of open specification. (07 Marks)

### Module-2

- 3 Refer Fig.Q.3 and write measurements in LBD format sheet and evaluate the quantity of the following item of works:
- 230 thick brick wall (05 Marks)
  - RCC lintel (04 Marks)
  - RCC roof slab (03 Marks)
  - Ceiling plaster in CM1:4 (03 Marks)
  - Internal wall plaster in CM1:6. (05 Marks)

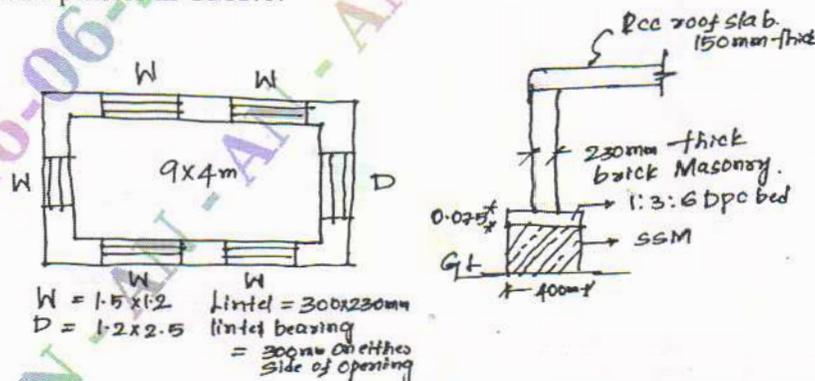


Fig.Q.3

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.

OR

- 4 Answer the following:
- List any four material testing equipments to be kept in site lab. (04 Marks)
  - List any two test each to be conducted on the following materials: i) Cement ii) Bricks  
iii) Concrete iv) Coarse Aggregates. (08 Marks)
  - List out any 8 safety measures to be followed during a multistory building construction. (08 Marks)

Module-3

- 5 Answer the following:
- Workout from the first principles, rate analysis for RCC roof slab 1:2:4. (12 Marks)
  - Name the two different types of overheads with 3 examples for each. (04 Marks)
  - Explain: i) Profit ii) Tools and plants. (04 Marks)

OR

- 6 Answer the following:
- Write difference between schedule of rates and market rates. (04 Marks)
  - Mention four factors because of which rate vary. (04 Marks)
  - Explain basic price. (03 Marks)
  - A tender has a quote for wooden frame made of 2 Cuff Sal Wood. It is decided to replace Sal Wood with Teak Wood. Basic price Sal Wood Rs.28000 per cumt and the price of teakwood used is Rs.1,25,000. If the contractor is allowed consideration only on difference in price of wood and nothing else, what is additional amount the contractor is entitled for? (09 Marks)

Module-4

- 7 A roof slab of size  $6500 \times 6500$ mm has a single T-beam at the center. Beam size along with reinforcement details are shown in the drawing [Ref.Fig.Q.7]. Consider cover allowance as 25mm, crank length as  $0.42d$ , hook length as  $9D$  ( $D$  is diameter of rod).
- Calculate Quantity of RCC beam (03 Marks)
  - Calculate Quantity of RCC roof slab (03 Marks)
  - Calculate Quantity of formwork for beam (03 Marks)
  - Calculate Quantity of Reinforcement steel in the T-beam. (11 Marks)

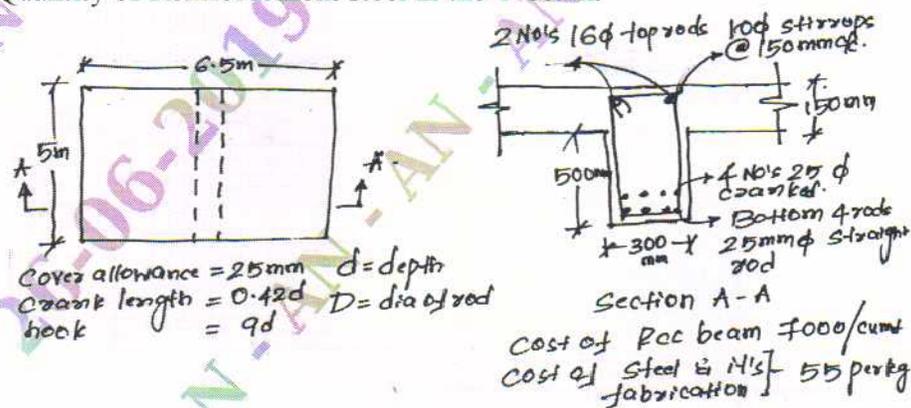


Fig.Q.7

OR

- 8 Answer the following:
- Write detailed specification of the item of work supply in and fixing of door for Fig.Q.8. (08 Marks)
  - Refer Fig.Q.8 for details of an office cabin Wooden door. Consider cost of Teak Wood as Rs.2000 per cuft cost of flush shutter as Rs.80 per sqft, cost of enamel painting as Rs.18, carpentry labour as Rs.180 per sqft and fittings and fixtures as is Rs.1000. Calculate cost of the supplying, making and fixing of door. (12 Marks)

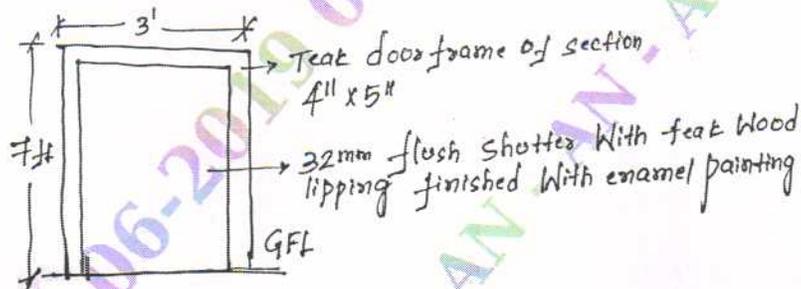


Fig.Q.8

**Module-5**

- 9 Answer the following:
- Refer Fig.Q.9(a) and calculate construction cost of a 3m long drain and also cost per meter of the drain. Assume rate of excavation as Rs.1800 per cumt rate of PCC 1:5:10 bed as Rs.4500 per cumt rate of 230mm thick brick work as Rs.8000 per cumt. Rate 12mm thick cement plaster as Rs.4500 per sqmt. (10 Marks)

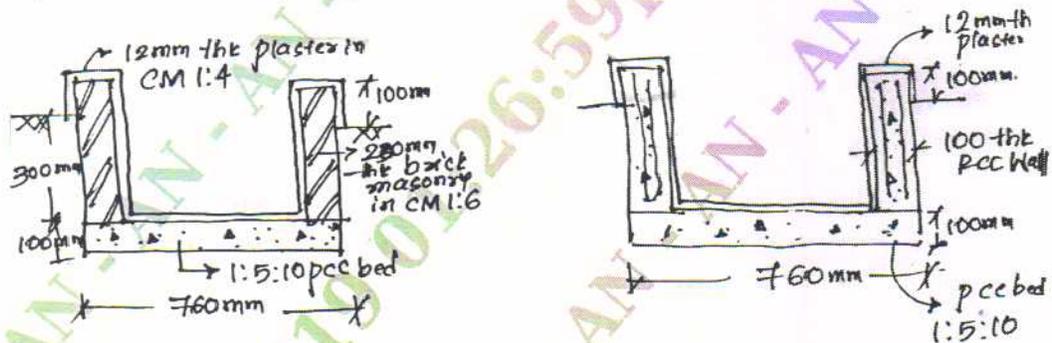


Fig.Q.9(a)

- What shall be the cost per meter if the side walls is replaced by 100mm thick RCC wall in cumt and its rate as Rs.11,000 per cumt. (Assume all rates as above along with reinforcement steel quantity @ 70 kg per cumt of concrete and its rate as Rs.70 per kg). (08 Marks)
- In question 9b the 100mm thick side wall is in the unit cumt and the rate is in Rs.11,000 per cumt. With all the specification remaining same and thickness of the RCC wall given, can the unit of the item change to sqmt and if so will the rate per sqmt change. If so what is the rate per sqmt? (02 Marks)

OR

- 10 Write briefly on:
- EMD
  - Security Deposit
  - Virtual completion certificate
  - RA bill
  - Name any four difference nature or types of tender. (20 Marks)

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