

# CBGS SCHEME



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15ARC46/15ENG46

## Fourth Semester B.Arch. Degree Examination, July/August 2022 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 a. Explain the need of Estimation. (07 Marks)  
b. Explain the factors affecting estimation of a building. (13 Marks)

OR

- 2 a. Write detailed specification for Earth work in excavation in foundation. (10 Marks)  
b. Write detailed specification for cement concrete 1 : 2 : 4. (10 Marks)

### Module-2

- 3 a. What is a Tender Document? What are the essential contents of Tender? (08 Marks)  
b. Write short notes on the following:  
i) Earnest Money Deposit and Security Retention.  
ii) Measurement book and its importance at site.  
iii) Safety norms to be followed at site and its importance.  
iv) Administrative sanction and Technical Sanction. (12 Marks)

OR

- 4 a. Explain at least three standard test results on cement and fine aggregates considered as a part of specification. (12 Marks)  
b. What are different safety norms followed during the "DEEP EXCAVATION" process at site (08 Marks)

### Module-3

- 5 Carryout the rate analysis for the following items:  
Cement – 320 Rs./Bag, Sand – 120/m<sup>3</sup>, Steel – 49 Rs./kg  
Coarse aggregate – 750 Rs./m<sup>3</sup>, Brick – 15 Rs./No.  
a. Cement concrete of 1 : 5 : 10 for bed in foundation. (10 Marks)  
b. 12 mm thick cement plastering in 1 : 3 in ceiling. (10 Marks)

OR

- 6 Explain the following:  
a. Schedule of Rates. (05 Marks)  
b. Public work department. (05 Marks)  
c. Escalation clause. (05 Marks)  
d. Rate analysis. (05 Marks)

### Module-4

- 7 Prepare a detailed estimate of a R.C.C. roof slab of 3 m clear span 12 cm thickness and 6 m clear long. Slab bearing on masonry is 150 mm allround. Reinforcement consists of 12 mm diameter main bars 12 cm C/C alternate bent up and distribution 6 mm diameter at 18 cm C/C. R.C.C work in centring and shuttering but excluding reinforcement is Rs.8000/m<sup>3</sup>. Providing and tying reinforcement is Rs.90 per kg. Do sketching and prepare schedule of bars. (12 mm rod – 0.89 kg/m, 6 mm rod – 0.22 kg/m) (20 Marks)

OR

- 8 Prepare a detailed estimate of a R.C.C beam of 8 m clear span (and 30 cm end bearing on masonry) and 75 cm × 40 cm in section. Beam top reinforcement is 2 Nos – 12 mm diameter bars. Beam bottom reinforcement is in 2 layers. First layer is 4 nos. 22 mm diameter bars, 2 nos. bent up at ends. II layer is 4 nos. 20 mm diameter bars, 2 nos. bent up at ends. Beam end stirrups consists of 10 mm diameter @ 12 cm C/C (5 nos.) and 10 mm diameter at 20 cm C/C (4 nos.) Provide 6 mm diameter stirrups in central remaining length. Do sketching and schedule of bars. Schedule of rates is same as Q.No.7 (12 mm diameter rod – 0.89 kg/m, 20 mm diameter rod – 2.47 kg/m, 22 mm diameter rod – 2.98 kg/m, 6 mm diameter rod – 0.22 kg/m) (20 Marks)

Module-5

- 9 Calculate the quantity of earthwork for 200 m length for a portion of a road in an uniform ground the heights of banks at the two ends being 1.0 m and 1.6 m. The formation width is 10 m and side slopes 2 : 1 (Horizontal : Vertical). Assume that there is no transverse slope. (Calculate using midsection, mean section and Prismoidal method) (20 Marks)

OR

- 10 Prepare a detailed estimate of a septic tank from the given drawings, Fig.Q10 by calculating following items.

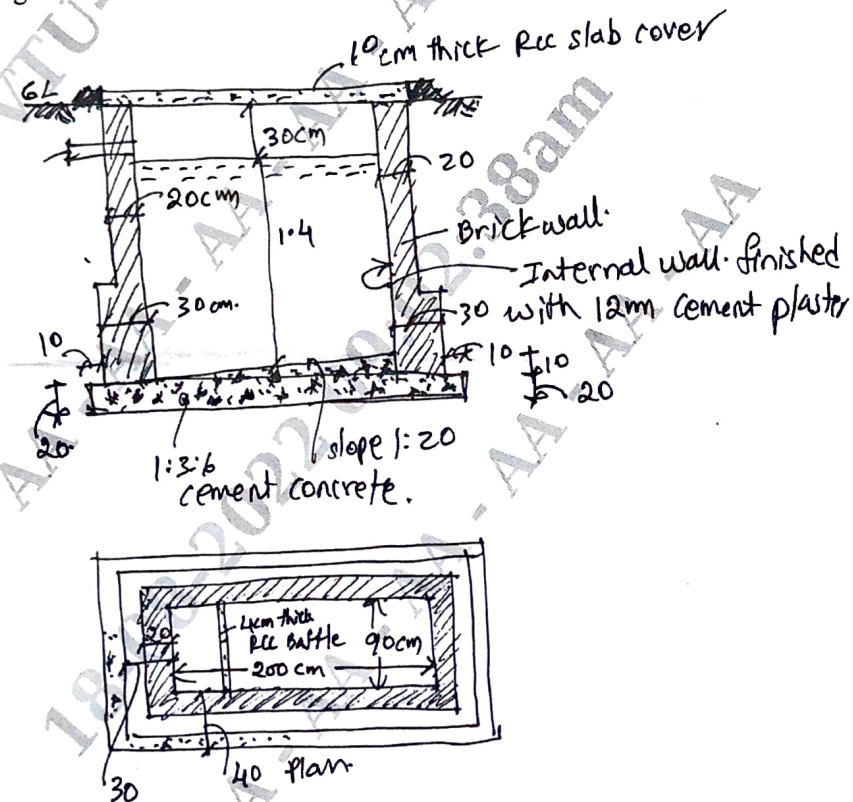


Fig. Q10

- Earthwork in Excavation. (04 Marks)
- Cement concrete 1 : 3:6 in foundation. (04 Marks)
- Brick work in 1 : 4 cement mortar. (04 Marks)
- Internal wall plastering of 12 mm thick cement mortar. (04 Marks)
- 10 cm thick RCC slab cover for septic tank. (04 Marks)

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