

CBCS Scheme



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15ARC4.6

Fourth Semester B.Arch. Degree Examination, Dec.2017/Jan.2018 Specification Quantity and Costing

Time: 3 hrs.

Max. Marks: 100

Note: Answer FIVE full questions, choosing one full question from each module.

Module-1

- 1 List out different types of approximate building methods:
Carpet area – 60 sqmt, Wall area – 10.93%, Cost of construction of building – ₹ 10,00,000,
Height of building from ground
Level to top of roof slab – 3.0 meters.
Parapet wall height – 0.8 meters (06 Marks)
- a. Determine cost per sq.mt by plinth Area method. (07 Marks)
- b. Determine cost per cumt by volume rate method. (07 Marks)

OR

- 2 Write detailed specification for the following giving measuring mode adopted, scaffolding where necessary also.
- a. Laying 600×600 mm vitrified tile on CM 1 : 6 bed. (08 Marks)
- b. Pointing in CM 1 : 1 over exposed brick masonry. (06 Marks)
- c. Excavation for foundation trenches. (06 Marks)

Module-2

- 3 Refer Fig. Q3. Using short wall-long wall method,
- a. Calculate Net center line with calculation details. (08 Marks)
- b. Calculate the quantity of earthwork in excavation for foundation. (04 Marks)
- c. Calculate the quantity PCC 1 : 4 : 8 for foundation. (04 Marks)
- d. Calculate the quantity of DPC. (04 Marks)

OR

- 4 a. Refer Fig. Q3. Using short wall-long wall method, (10 Marks)
- b. Calculate Quantity of SSM in CM 1 : 6. (10 Marks)
- c. Calculate Quantity of 200 mm thick solid block wall. (10 Marks)

Module-3

- 5 a. Write briefly on escalation clause in the condition of contract. Also write the formula to calculate the cost variation in material and cost variation on labour. (08 Marks)
- b. Write briefly on basic price. (06 Marks)
- c. Basic price of reinforcement steel is indicated in the tender as ₹ 50,000 per MT and the quantity of Reinforcement steel is 10 MT. If the purchase price at the end of the project is ₹ 48,000 per MT. Write if the client is obligated to receive from the contractor or pay the contractor. (06 Marks)

OR

- 6 Detailed rate analysis for [Importance is given for the detailed steps followed in the analysis of rates]
- a. 12 mm thick cement plaster in CM 1 : 4. (07 Marks)
- b. Random rubble masonry in CM 1 : 6. (07 Marks)
- c. 300×300 mm plain ceramic tile flooring in CM 1 : 3. (06 Marks)

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.

Module-4

- 7 Refer Fig. Q7 & Fig. Q8, calculate Reinforcement steel quantity of RCC column from the data - D7/8 as below. (20 Marks)

OR

- 8 Refer Fig. Q7 / Fig. 8, calculate the quantities of RCC roof slab, RCC column and RCC roof beam member from the data D - 7/8 as below.

D - 7/8 Following are the data:

- Size of column 200×600 mm, number of columns are - 4.
- Height of column from top of footing to bottom of roof beam is 4 mt.
- Size of RCC roof slab is 3000×5000 mm and 125 mm thick.
- Size of RCC roof beam connecting the 4 columns is 200×300 mm.
- Depth of beam excluding thickness of slab.

Main reinforcement of column - 4 Nos. of 20 mm dia
- 4 Nos. of 16 mm dia

Main reinforcement of Beam - 3 Nos. of 16 mm dia
- 3 Nos. of 12 mm dia

Stirrups 8 mm dia at spacing 150 mm C/C

Assume $\frac{d^2}{162}$ to derive weight of all bars in kg per mt, where d is the dia of the bar in mm or

7850 kg per cumt as density.

(20 Marks)

Module-5

- 9 Refer Fig. Q9

Calculate the cost of water per litre in underground sump tank. Consider the following item of work to be executed, whose rate is given to calculate the cost of water per litre. (Do not consider the cost of reinforcement steel. Consider 1 cumt as 1000 ltr of water)

- a. Earthwork in excavation including back filling @ 600 per cumt.
- b. PCC 1 : 3 : 6 bed @ 4500 per cumt.
- c. M20 RCC floor slab @ 7000 per cumt.
- d. M20 RCC side walls @ 12000 per cumt.
- e. M20 RCC covering slab @ 10500 per cumt.
- f. External wall plastering in CM 1 : 6 @ 450 per sq. mt.
- g. Internal wall plastering in CM 1 : 4 mixed with water proof compound @ 600 per sqmt.

(20 Marks)

OR

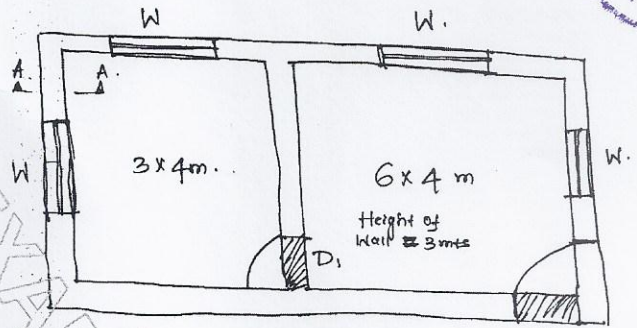
- 10 Define the following:

- a. Certificate of virtual completion.
- b. Liquidated damages.
- c. RA bill and Final bill.
- d. Payment certificate.
- e. Measurement book.

(20 Marks)



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$D = 1 \times 2.1$
 $D_1 = 0.9 \times 2.1$
 $W = 1 \times 1.2$
 Cost of Earth Work.
 Excavation is 510 sp per cum.
 Cost of pcc bed 1:3:6 is
 5000 sps per cum.
 Cost of ssm in CM 1:6:5500 sp per cum.

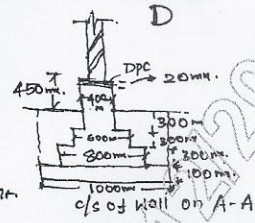


Fig. Q3

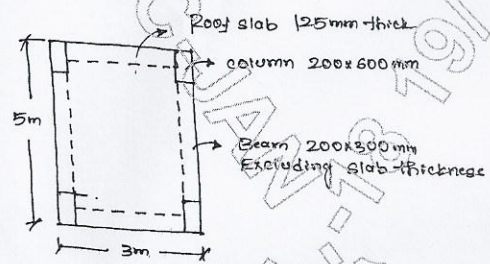


Fig. Q7/8

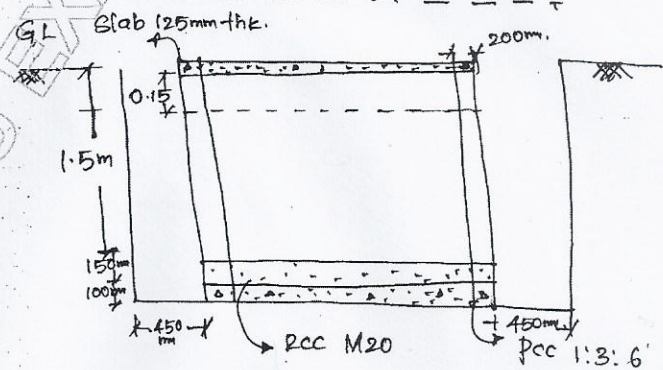
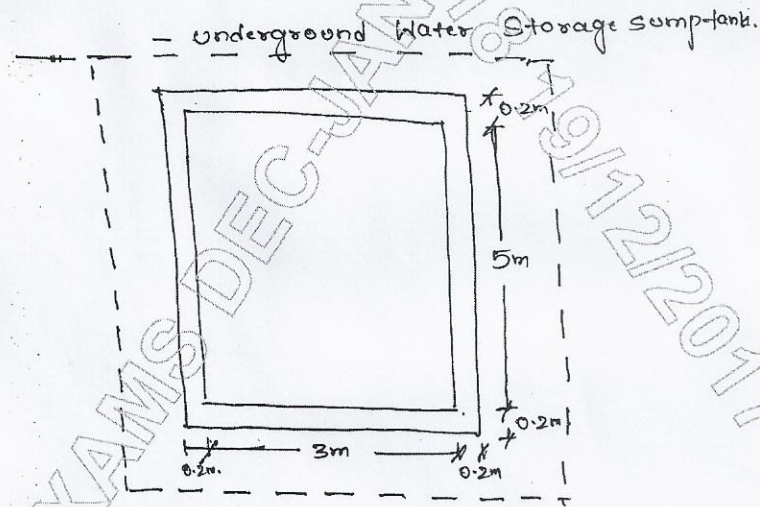


Fig. Q9