

4013 (5) ①

N19 - 00167

TED (15) - 4013

Reg. No.....

(REVISION - 2015)

Signature

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2019

QUANTITY SURVEYING - I

[Time : 3 hours

(Maximum marks : 100)

[Note :—1. Missing data may be suitably assumed.
2. Figures accompanied.]

PART — A

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. Write the standard units of (a) RCC work (b) Collapsible gate
2. What is meant by supplementary estimate ?
3. List the methods of taking out quantities.
4. What is meant by dead men ?
5. What is meant by conveyance charges ?

(5×2 = 10)

PART — B

(Maximum marks : 30)

II Answer any *five* of the following questions. Each question carries 6 marks.

1. List the duties of quantity surveyor.
2. Define (a) work charged establishment (b) contingencies (c) lump sum.
3. Calculate the steel required for RCC slab of size $6 \times 3 \times 0.1$ m in kg @ 0.80% by volume of RCC.
4. Compute the wood work required for the construction of a three leaved window frame of size 150×140 . The size of cross section of frame is 10×7 cm.
5. Determine the quantity of earthwork for a masonry well of 1.5 m inner diameter and 4.5 in deep. The thickness of masonry is 30 cm.

2

Marks

- 6. Calculate the capacity of a water tank in liters of inner dimensions $5.3 \times 3 \times 1.2$ m and also calculate the area of plastering for walls. Assume thickness of wall as 30cm.
- 7. Explain (a) Standard Data book (b) Schedule of rates book . (5×6 = 30)

PART — C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

UNIT — I

- III (a) (i) Explain cubical content method of approximate estimate.
- (ii) The plinth area of a building with tiled roof is 80 m^2 . The rise of roof is 1.6 m and height of wall 3 m. Calculate the cost of building assuming cube rate as Rs. $900/\text{m}^3$. 8
- (b) Find the capacity of the reservoir from 50 m contour to 80 m contour using trapezoidal formula from the following data.

| | | | | | | | |
|----------------------|------|------|------|------|------|------|------|
| Contour in 'm' | 50 | 55 | 60 | 65 | 70 | 75 | 80 |
| Area in m^2 | 1300 | 2400 | 3800 | 4900 | 6200 | 8700 | 9800 |

7

OR

- IV (a) A canal is to be excavated between two points A and B which are at 120 m apart. Bed width is 10 m and side slope $1\frac{1}{2} : 1$. Depth of cutting at A is 2 m and at B 3m. Calculate the quantity of earthwork by
 - (i) Mid sectional area method
 - (ii) Mean sectional area method
 - (iii) Trapezoidal rule
 - (iv) Prismoidal rule8
- (b) The details of a road embankment are as follows. There is no transverse slope for the ground. Formation width is 9 m and side slope 2:1

| | | | | | | | | | | | |
|-----------------|----|-------------------------------------|------|------|------|------|------|------|------|------|------|
| Distance | 0 | 200 | 400 | 600 | 800 | 1000 | 1200 | 1400 | 1600 | 1800 | 2000 |
| RL of ground | 70 | 70.3 | 70.6 | 71.1 | 71.3 | 72.2 | 72.5 | 71.9 | 72.2 | 73.2 | 74.3 |
| RL of formation | 71 | Rising gradient 1 in 500..... | | | | | | | | | |

Calculate the quantity of earthwork by using Prismoidal formula. 7

UNIT — II

- V (a) Calculate the quantity of earth work excavation in foundation for the residence given in Figure - 1 8
 - (b) Calculate the quantity of wood work for frames of doors and windows for residence given Figure - 1 7
- OR
- VI (a) Calculate the quantity of RR Masonry in CM 1:6 for foundation and basement for the residence given in Figure - 1. 8
 - (b) Calculate the quantity of RCC 1:2:4 for roof slab and lintel for the residence given in Figure - 1. 7

3

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UNIT — III

Marks

- VII (a) Calculate the quantity of plastering wall with CM 1:6 for the residence given in Figure - 1. 8
- (b) Calculate the quantity of painting for doors and windows for the residence given in Figure - 1. 7

OR

- VIII (a) Estimate the quantity of RR Masonry and DR masonry for the masonry well shown in Figure - 2. 8
- (b) Calculate the quantity of ceiling plastering with CM 1:3 for the residence given in Figure - 1. 7

UNIT — IV

- IX (a) Work out the rate per unit for RR Masonry in CM 1:6 for foundation and basement.

Materials : 1 m³ blasted rubble @ Rs. 650/m³
 0.3m³ dry sand @ Rs. 850/m³
 72 Kg cement @ Rs. 9000/t

Labour : 0.70 mason @ Rs. 475/Each
 0.35 man @ Rs. 300 residence/Each
 0.70 woman @ Rs. 250/Each

Conveyance of materials :

| Name of material | Distance in Km | Rate/unit/km |
|------------------|----------------|--------------|
| Rubble | 15 | 20 |
| Sand | 20 | 12 |
| Cement | 8 | 14 |

8

- (b) Work out the rate for plastering with CM 1:5, 12 mm thick from the given data.

Materials and labour for 10 m².

Dry sand 0.15 m³ @ Rs. 850/m³
 Cement 43 kg @ Rs. 9000/t
 Brick mason 0.9 @ Rs. 475/E
 Man 0.55 @ Rs. 300/E
 Woman 1.10 @ Rs. 250/E
 Hire charges for scaffolding - I.S @ 15/unit.

7

OR

X (a) Calculate the rate for standard unit of brickwork in CM 1:6

Materials : 500 nos. bricks @ Rs. 5100/1000 nos.
0.24m³ dry sand @ Rs. 950/m³
58 kg cement @ Rs. 6500/t

Labour : 0.70 brick mason @ Rs. 600/E
0.35 man @ Rs. 450/E
0.70 woman @ Rs. 375/E

Take lump sum for scaffolding @ Rs. 15/m³ -

8

(b) Work out the rate for 1m³CC 1: 4 : 8 using 40 mm broken stone.

Materials : 40 mm broken stone 0.95 m³ @ Rs. 660/m³
River sand 0.48 m³ @ Rs. 2800/m³
Cement 171 kg. @ Rs. 6000/t

Labour : Mason 0.10 @ Rs. 475/E
Man 1.00 @ Rs. 377/E
Women 1.40 @ Rs. 250/E

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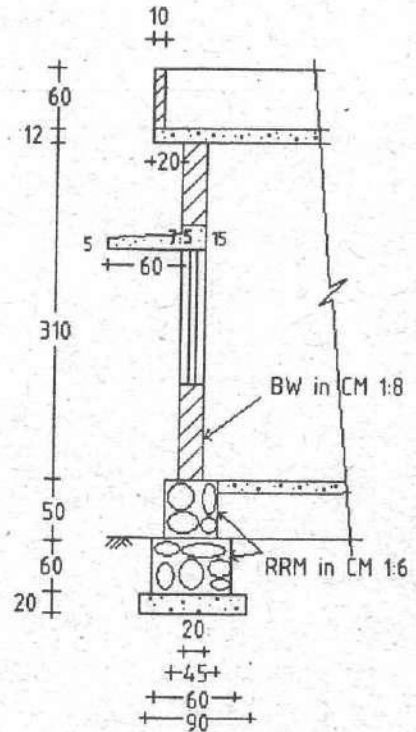
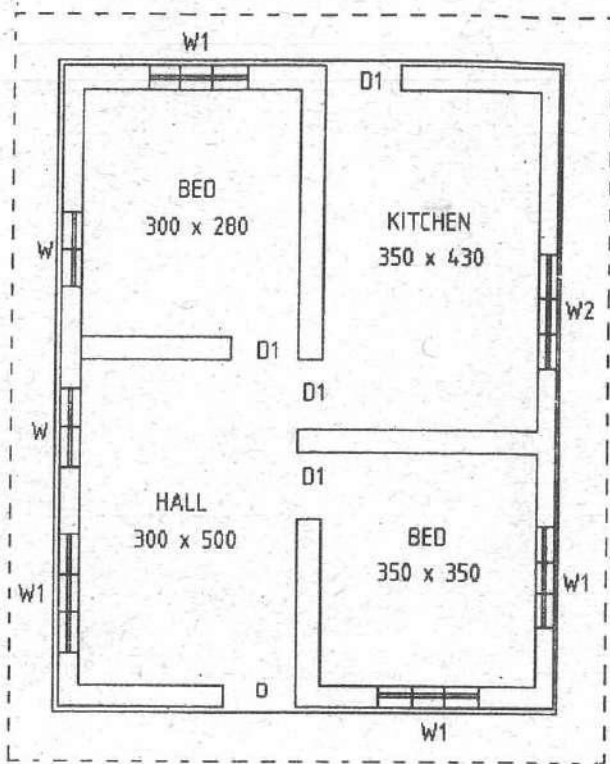


FIGURE - 1 A RESIDENCE

- D - 100 x 210
- D1 - 90 x 210
- W - 100 x 150
- W1 - 150 x 150
- W2 - 150 x 130
- Size of Door Frame - 12 x 8
- Size of Window Frame - 10 x 8
- Provide lintel through the wall

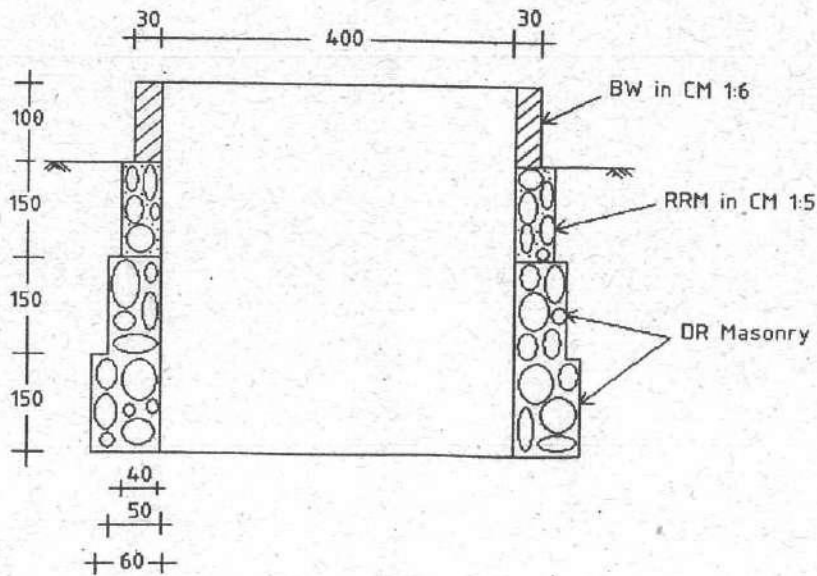


FIG - 2 MASONRY WELL

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1

SCHEME OF EVALUATION

(Scoring Indicators)

Revision : 2015

Course Code : 4013

Course Title : QUANTITY SURVEYING - I

| Qst. No. | Scoring Indicator | Split up | Sub Total | Total |
|----------|--|----------|-----------|-------|
| | <u>PART -A</u> | | | |
| I | 1 (i) 10 dm3 (ii) 10 dm2 | | | 2 |
| | 2 It is a detailed estimate for the additional works or changes due to material deviation of a structural nature from original design. It is accompanied by a report stating the necessity, amount of original estimate and the total amount including supplementary estimate. | | | 2 |
| | 3 (i) Long wall and short wall method (in-to-in and out-to-out method). (ii) Centre line method. (iii) Partly centre line and partly cross wall method. | | | 2 |
| | 4 These are the portions of the original ground which are left at suitable intervals during earthwork cutting, for the purpose of measuring the average depth of excavation. | | | 2 |
| | 5 It is the cost for conveyance of materials to the work site. | | | 2 |
| | <u>PART - B</u> | | | |
| II | 1 He should read the drawings of the project. He should take carefully the measurements from drawings and do the squaring of dimensions. He should prepare the abstract estimate and billing. He should visit the site and assess the quantities of work done. He should value the work done based on agreement rate. He should attend in legal case involving court procedure. | | | 6 |
| | 2 (i) During the construction of a project, supervisors, watchmen, guard etc., are employed purely on temporary basis. Their salaries are drawn from LS amount allotted towards workcharged establishment. (ii) These are the incidental expenses of miscellaneous character which cannot be predicted during the preparation of estimate. These are included in LS provision. (iii) While preparing estimate, it is difficult to work out in detail in case of petty items such as site clearance, dewatering, removing roots, architectural features, contingencies, watersupply and sanitary arrangements, electrical installations etc., In such cases, certain % of amount is allotted in the estimate as LS provision. | 2 2 | | |
| | 3 Quantity of RCC = $6 \times 3 \times 0.1 = 1.8 \text{ m}^3$ Quantity of steel = $1.8 \times 0.8/100 \times 7850 = 113.04 \text{ kg}$ | 3 3 | | 6 |
| | 4 Total length = 2 horizontal + 4 vertical = $2 \times 1.5 + 4 \times 1.4 = 8.6$ Quantity of wood work for frame of window = $8.6 \times 0.1 \times 0.07 = 0.06 \text{ m}^3$ | 3 3 | | 6 |

(iii) Trapezoidal formula, $V = L/2 (A1 + An)$
 $A1 = 10 \times 2 + 1.5 \times 2 \times 2 = 26$
 $An = 10 \times 3 + 1.5 \times 3 \times 3 = 43.5$
 $V = 120/2 (26 + 43.5) = 4170 \text{ m}^3$

(iv) Prismoidal formula, $V = L/6 (A1 + A2 + 4 Am)$
 $A1 = 26, A2 = 43.5, Am = 34.38$
 $V = 120/6 (26 + 43.5 + 4 \times 34.38) = 4140.4 \text{ m}^3$

(b) $d1 = 71 - 70 = 1$ $d2 = 71.4 - 70.3 = 1.1$
 $d3 = 71.8 - 70.6 = 1.2$ $d4 = 72.2 - 71.1 = 1.1$
 $d5 = 72.6 - 71.3 = 1.3$ $d6 = 73 - 72.2 = 0.8$
 $d7 = 73.4 - 72.5 = 0.9$ $d8 = 73.8 - 71.9 = 1.9$
 $d9 = 74.2 - 72.2 = 2$ $d10 = 74.6 - 73.2 = 1.4$
 $d11 = 75 - 74.3 = 0.7$

$A1 = 9 \times 1 + 2 \times 1 \times 1 = 11$
 $A2 = 9 \times 1.1 + 2 \times 1.1 \times 1.1 = 12.32$
 $A3 = 9 \times 1.2 + 2 \times 1.2 \times 1.2 = 13.68$
 $A4 = 9 \times 1.1 + 2 \times 1.1 \times 1.1 = 12.32$
 $A5 = 9 \times 1.3 + 2 \times 1.3 \times 1.3 = 15.08$
 $A6 = 9 \times 0.8 + 2 \times 0.8 \times 0.8 = 8.48$
 $A7 = 9 \times 0.9 + 2 \times 0.9 \times 0.9 = 9.72$
 $A8 = 9 \times 1.9 + 2 \times 1.9 \times 1.9 = 24.32$
 $A9 = 9 \times 2 + 2 \times 2 \times 2 = 26$
 $A10 = 9 \times 1.4 + 2 \times 1.4 \times 1.4 = 16.52$
 $A11 = 9 \times 0.7 + 2 \times 0.7 \times 0.7 = 7.28$

Prismoidal formula

$V = d/3 [(A1+An)+2(A3+A5+...An-2)+4(A2+A4+.....An-1)]$
 $= 200/3 [(11+7.28)+2(13.68+15.08+9.72+26)+$
 $4(12.32+12.32+8.48+24.32+16.52)$
 $= 200/3 (18.28+128.96+295.84) = 29538.67 \text{ m}^3$

V (a) c/c length calculation

LW - $5+2.8+.4 = 8.2$ (3 nos)
 SW - $3+.2 = 3.2$ (3 nos)
 SW - $3.5+.2 = 3.7$ (3 nos)

Total c/c length = 45.30

No. of 'T' junctions = 6

Long & Short wall method

| Details | No | L | B | H/D | Qty | Remarks |
|---------|----|-----|-----|-----|----------------------|---------------|
| LW | 3 | 9.1 | 0.9 | 0.8 | 19.66 | $8.2+0.9=9.1$ |
| SW | 3 | 2.3 | 0.9 | 0.8 | 4.97 | $3.2-0.9=2.3$ |
| SW | 3 | 2.8 | 0.9 | 0.8 | 6.05 | $3.7-.9=2.8$ |
| Total | | | | | 30.67 m ³ | |

Centre line method

corrected c/c length = $45.30 - 6 \times 0.9/2 = 42.60$

| | | | | |
|---|------|-----|-----|----------------------|
| 1 | 42.6 | 0.9 | 0.8 | 30.67 m ³ |
|---|------|-----|-----|----------------------|

| VI (a) | (b) | Details | No | L | B | H/D | Qty | Remarks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|---------|------|-------|-------|-----------------|-------------|-------------|---|---|----|------|---------|------|------|-------|-------|---------------|---------|----|------|------|------|-------|---------------|-------------|----|------|------|------|-------|-----------------|-------------|----|----|-----|-----|-------|---------------|-------------|-------|--|--|--|--|--------|----------|---|--|
| | D | 1 | 5.2 | 0.12 | 0.08 | 0.05 | 0.05 | 2x2.1+1=5.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | D1 | 4 | 5.1 | 0.12 | 0.08 | 0.20 | 0.20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | W | 2 | 11 | 0.10 | 0.08 | 0.18 | 0.18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | W1 | 4 | 9 | 0.10 | 0.08 | 0.29 | 0.29 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | W2 | 1 | 8.2 | 0.10 | 0.08 | 0.07 | 0.07 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | 0.79 m3 | | | 7 | 7 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | For foundation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <u>Long & Short wall method</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <table border="1"> <thead> <tr> <th>Details</th> <th>No</th> <th>L</th> <th>B</th> <th>H/D</th> <th>Qty</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>LW</td> <td>3</td> <td>8.8</td> <td>0.6</td> <td>0.6</td> <td>9.50</td> <td>8.2+0.6=8.8</td> </tr> <tr> <td>SW</td> <td>3</td> <td>2.6</td> <td>0.6</td> <td>0.6</td> <td>2.81</td> <td>3.2-0.6=2.6</td> </tr> <tr> <td>SW</td> <td>3</td> <td>3.1</td> <td>0.6</td> <td>0.6</td> <td>3.35</td> <td>3.7-0.6=3.1</td> </tr> <tr> <td colspan="6">Total</td> <td>25.55 m3</td> </tr> </tbody> </table> | | | | | | | | | | | | Details | No | L | B | H/D | Qty | Remarks | LW | 3 | 8.8 | 0.6 | 0.6 | 9.50 | 8.2+0.6=8.8 | SW | 3 | 2.6 | 0.6 | 0.6 | 2.81 | 3.2-0.6=2.6 | SW | 3 | 3.1 | 0.6 | 0.6 | 3.35 | 3.7-0.6=3.1 | Total | | | | | | 25.55 m3 | 4 | |
| Details | No | L | B | H/D | Qty | Remarks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LW | 3 | 8.8 | 0.6 | 0.6 | 9.50 | 8.2+0.6=8.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SW | 3 | 2.6 | 0.6 | 0.6 | 2.81 | 3.2-0.6=2.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SW | 3 | 3.1 | 0.6 | 0.6 | 3.35 | 3.7-0.6=3.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total | | | | | | 25.55 m3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <u>For basement</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <tbody> <tr> <td>LW</td> <td>3</td> <td>8.65</td> <td>0.45</td> <td>0.50</td> <td>5.84</td> <td>8.2+0.45=8.65</td> </tr> <tr> <td>SW</td> <td>3</td> <td>2.75</td> <td>0.45</td> <td>0.50</td> <td>1.86</td> <td>3.2-0.45=2.75</td> </tr> <tr> <td>SW</td> <td>3</td> <td>3.25</td> <td>0.45</td> <td>0.50</td> <td>2.19</td> <td>3.7-0.45=3.25</td> </tr> <tr> <td colspan="6">Total</td> <td>25.55 m3</td> </tr> </tbody> </table> | | | | | | | | | | | | LW | 3 | 8.65 | 0.45 | 0.50 | 5.84 | 8.2+0.45=8.65 | SW | 3 | 2.75 | 0.45 | 0.50 | 1.86 | 3.2-0.45=2.75 | SW | 3 | 3.25 | 0.45 | 0.50 | 2.19 | 3.7-0.45=3.25 | Total | | | | | | 25.55 m3 | 4 | 8 | | | | | | | | |
| LW | 3 | 8.65 | 0.45 | 0.50 | 5.84 | 8.2+0.45=8.65 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SW | 3 | 2.75 | 0.45 | 0.50 | 1.86 | 3.2-0.45=2.75 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SW | 3 | 3.25 | 0.45 | 0.50 | 2.19 | 3.7-0.45=3.25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total | | | | | | 25.55 m3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <u>Centre line method</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <u>For foundation</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| corrected c/c length = $45.3 - 6 \times 0.6 / 2 = 43.5$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <tbody> <tr> <td>1</td> <td>43.5</td> <td>0.60</td> <td>0.60</td> <td>15.66</td> </tr> </tbody> </table> | | | | | | | | | | | | 1 | 43.5 | 0.60 | 0.60 | 15.66 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 43.5 | 0.60 | 0.60 | 15.66 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <u>For basement</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| corrected c/c length = $45.3 - 6 \times 0.45 / 2 = 43.95$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <tbody> <tr> <td>1</td> <td>43.95</td> <td>0.45</td> <td>0.50</td> <td>9.89</td> </tr> </tbody> </table> | | | | | | | | | | | | 1 | 43.95 | 0.45 | 0.50 | 9.89 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 43.95 | 0.45 | 0.50 | 9.89 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total | | | | | | 25.55 m3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VII (a) | (b) | Details | No | L | B | H/D | Qty | Remarks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | For roof slab | 1 | 8.8 | 7.5 | 0.12 | 7.92 | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | For lintel-LW | 3 | 8.4 | 0.2 | 0.15 | 0.76 | 8.2+0.2=8.4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | SW | 3 | 3 | 0.2 | 0.15 | 0.27 | 3.2-0.2=3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | SW | 3 | 3.5 | 0.2 | 0.15 | 0.32 | 3.7-0.2=3.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | 9.27 m3 | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <u>Outside plastering for wall</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <table border="1"> <tbody> <tr> <td>1</td> <td>31</td> <td>-</td> <td>3.1</td> <td>96.10</td> <td>2(7.1+8.4)=31</td> </tr> </tbody> </table> | | | | | | | | | | | | 1 | 31 | - | 3.1 | 96.10 | 2(7.1+8.4)=31 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 31 | - | 3.1 | 96.10 | 2(7.1+8.4)=31 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | <u>Inside plastering</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <tbody> <tr> <td>Hall</td> <td>1</td> <td>16</td> <td>-</td> <td>3.1</td> <td>49.60</td> <td>(3+5)2=16</td> </tr> <tr> <td>Bed</td> <td>1</td> <td>11.6</td> <td>-</td> <td>3.1</td> <td>35.96</td> <td>(3+2.8)2=11.6</td> </tr> <tr> <td>Kitchen</td> <td>1</td> <td>15.6</td> <td>-</td> <td>3.1</td> <td>48.36</td> <td>(3.5+4.3)2=15.6</td> </tr> <tr> <td>Bed</td> <td>1</td> <td>14</td> <td>-</td> <td>3.1</td> <td>43.40</td> <td>(3.5+3.5)2=14</td> </tr> <tr> <td colspan="6">Total</td> <td>273.42</td> </tr> </tbody> </table> | | | | | | | | | | | | Hall | 1 | 16 | - | 3.1 | 49.60 | (3+5)2=16 | Bed | 1 | 11.6 | - | 3.1 | 35.96 | (3+2.8)2=11.6 | Kitchen | 1 | 15.6 | - | 3.1 | 48.36 | (3.5+4.3)2=15.6 | Bed | 1 | 14 | - | 3.1 | 43.40 | (3.5+3.5)2=14 | Total | | | | | | 273.42 | 3 | | |
| Hall | 1 | 16 | - | 3.1 | 49.60 | (3+5)2=16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bed | 1 | 11.6 | - | 3.1 | 35.96 | (3+2.8)2=11.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kitchen | 1 | 15.6 | - | 3.1 | 48.36 | (3.5+4.3)2=15.6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bed | 1 | 14 | - | 3.1 | 43.40 | (3.5+3.5)2=14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total | | | | | | 273.42 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total | | | | | | 273.42 | | | 7 | 7 | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Deductions

| | | | | | |
|----|---|-----|---|-----|------|
| D | 1 | 1 | - | 2.1 | 2.10 |
| D1 | 4 | 0.9 | - | 2.1 | 7.56 |
| W | 2 | 1 | - | 1.5 | 3 |
| W1 | 4 | 1.5 | - | 1.5 | 9 |
| W2 | 1 | 1.5 | - | 1.3 | 1.95 |

Total deduction 23.61
 Total less deduction 249.81 m2

(b)

| Details | No | L | B | H/D | Qty | Remarks |
|---------|----------|-----|-----|-----|----------|---------|
| For D | 1 x 2.25 | 1 | 2.1 | - | 4.73 | |
| D1 | 4 x 2.25 | 0.9 | 2.1 | - | 17.01 | |
| W | 2 x 1 | 1 | 1.5 | - | 3 | |
| W1 | 4 x 1 | 1.5 | 1.5 | - | 9 | |
| W2 | 1 x 1 | 1.5 | 1.3 | - | 1.95 | |
| Total | | | | | 35.69 m2 | |

VIII (a)

| Details | No | L | B | H/D | Qty | Remarks |
|---------|----|---|---|-----|-----|---------|
|---------|----|---|---|-----|-----|---------|

(i) For RR Masonry

| | | | | | |
|---|----------|-----|-----|---------|------------|
| 1 | 3.14x4.4 | 0.4 | 1.5 | 8.29 m3 | L= π D |
|---|----------|-----|-----|---------|------------|

(ii) For DR Masonry

| | | | | | |
|----------|---|----------|-----|-----|-------|
| 1st step | 1 | 3.14x4.6 | 0.6 | 1.5 | 13 |
| 2nd step | 1 | 3.14x4.5 | 0.5 | 1.5 | 10.60 |

Total 23.60 m3

(b)

| Details | No | L | B | H/D | Qty | Remarks |
|------------------|----|------|-----|-----|----------|-----------------|
| Hall | 1 | 3 | 5 | - | 15 | |
| Bed | 1 | 3 | 2.8 | - | 8.4 | |
| Kitchen | 1 | 3.5 | 4.3 | - | 15.05 | |
| Bed | 1 | 3.5 | 3.5 | - | 12.25 | |
| Roof projection- | 1 | 31.8 | 0.2 | - | 6.36 | 2(7.3+8.6)=31.8 |
| Total | | | | | 57.06 m2 | |

IX (a)

| Description | Qty | Unit | Rate | Amount |
|-------------|-----|------|------|--------|
|-------------|-----|------|------|--------|

Materials

| | | | | |
|----------------|-----|----|-----------|--------|
| Blasted Rubble | 1 | m3 | 650 | 650.00 |
| Dry sand | 0.3 | m3 | 850 | 255.00 |
| Cement | 72 | kg | 9000/1000 | 648.00 |

Labour

| | | | | |
|-------|------|---|-----|--------|
| Mason | 0.7 | E | 475 | 332.50 |
| Man | 0.35 | E | 300 | 105.00 |
| Woman | 0.70 | E | 250 | 175.00 |

Conveyance

| | | | | |
|--------|-----|----|-------------|--------|
| Rubble | 1 | m3 | 20 x 15 | 300.00 |
| Sand | 0.3 | m3 | 12 x 20 | 72.00 |
| Cement | 72 | kg | 14 x 8/1000 | 8.06 |

Total 2545.56

Add 10 % CP 254.56

Total Rs. 2800.12/m3

| (b) | Description | Qty | Unit | Rate | Amount | | | |
|-----|-------------------------------------|--------------------|------------|-------------|-------------------|---------------|---|------|
| | <u>Materials</u> | | | | | | | |
| | Dry sand | 0.15 | m3 | 850 | 127.50 | | | |
| | Cement | 43 | kg | 9000/1000 | 387.00 | | 2 | |
| | <u>Labour</u> | | | | | | | |
| | Mason | 0.9 | E | 475 | 427.50 | | | |
| | Man | 0.55 | E | 300 | 165.00 | | | |
| | Woman | 1.10 | E | 250 | 275.00 | | 2 | |
| | Hire charges for scaffolding - LS-- | | | 15 | 15.00 | | 1 | |
| | | | | Total | 1397.00 | | | |
| | | | | Add 10 % CP | 139.70 | | | |
| | | | | Total | Rs. 1536.70/10 m2 | | 2 | 7 15 |
| X | (a) | <u>Description</u> | <u>Qty</u> | <u>Unit</u> | <u>Rate</u> | <u>Amount</u> | | |
| | | <u>Materials</u> | | | | | | |
| | | Bricks | 500 | nos | 5100/1000 | 2550.00 | | |
| | | Sand | 0.24 | m3 | 950 | 228.00 | | |
| | | Cement | 58 | kg | 6500/1000 | 377.00 | | |
| | | <u>Labour</u> | | | | | | |
| | | Brick Mason | 0.7 | E | 600 | 420.00 | | |
| | | Man | 0.35 | E | 450 | 157.50 | | |
| | | Woman | 0.70 | E | 375 | 262.50 | | |
| | | Scaffolding - LS-- | | | 15 | 15.00 | | |
| | | | | Total | 4010.00 | | | |
| | | | | Add 10 % CP | 401.00 | | | |
| | | | | Total | Rs. 4411.00/ m3 | | | |
| | (b) | <u>Description</u> | <u>Qty</u> | <u>Unit</u> | <u>Rate</u> | <u>Amount</u> | | |
| | | <u>Materials</u> | | | | | | |
| | | 40 mm broken stone | 0.95 | m3 | 660 | 627.00 | | |
| | | River Sand | 0.48 | m3 | 2800 | 1344.00 | | |
| | | Cement | 171 | kg | 6000/1000 | 1026.00 | | |
| | | <u>Labour</u> | | | | | | |
| | | Mason | 0.10 | E | 475 | 47.50 | | |
| | | Man | 1.00 | E | 377 | 377.00 | | |
| | | Woman | 1.40 | E | 250 | 350.00 | | |
| | | | | Total | 3771.50 | | | |
| | | | | Add 10 % CP | 377.15 | | | |
| | | | | Total | Rs. 4148.65/ m3 | | | |