

Date \_\_\_\_\_

Name

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Subject

Quantity Surveying  
and estimation.

Submitted To

Engr. Imtiaz Khan

Date

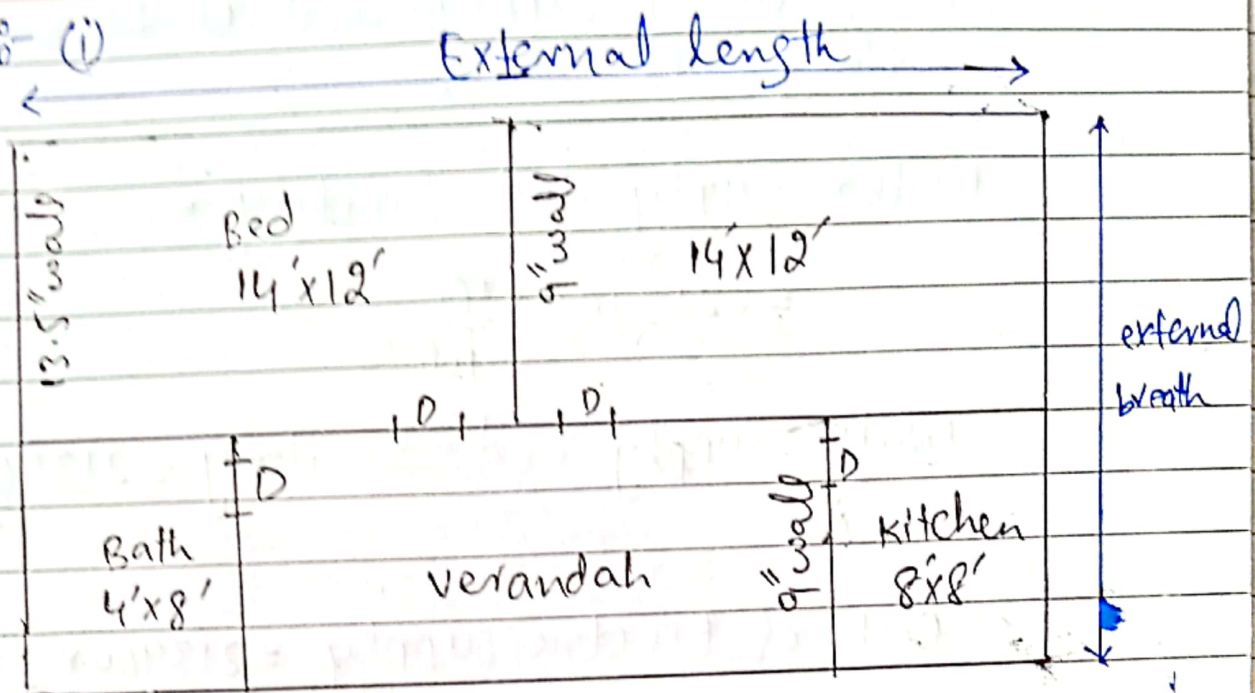
28/09/2020

& Summer Semester

6<sup>th</sup>

①

Q.18- (i)



sol:-

(i) External length of building

$$= 14 + 14 + 2(1.125) + 0.75$$

$$\text{External length of building} = 31 \text{ ft.}$$

(ii) External breadth of building

$$= 12 + 8 + 2(1.125) + 0.75$$

$$= 23 \text{ ft}$$

(iii) plinth area of the building

$$= 31 * 23 = 713 \text{ ft}^2$$

$$\text{Rate of construction} = \text{Rs. } 300/\text{SFT}$$

$$\text{Cost of construction} = 713 * 300$$

$$\text{Cost of construction} = 213900$$

Cost of water supply and ~~water~~  
Sanitary is 10%.

$$\text{Water Supply and Sanitary} = \\ = 213900 \times \frac{10}{100}$$

$$\text{Water Supply and Sanitary} = 21390/-$$

$$\text{Cost of Electric supply} = 213900 \times \frac{10}{100}$$

$$\text{Cost of electric supply} = 21390/-$$

$$\text{Cost of Gas supply} = 213900 \times \frac{5}{100}$$

$$\text{Cost of Gas supply} = 10695/-$$

$$\text{Total Cost} = 213900 + 21390 + 21390 \\ + 10695$$

$$\text{Total Cost} = \text{Rs. } 267375/-$$

$$\text{Contingencies} = 267375 \times \frac{3}{100}$$

$$\text{Contingencies} = \text{Rs. } 8021.25/-$$

$$\text{Grand Total} = 267375 + 8021.25$$

$$\text{Grand Total} = \text{Rs. } 275396.25/-$$

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Q1: (ii)

Sol:

Total wall length  
length of wall =  $14+14+12+12+12+12+14+14$   
 $+8+8+8+8+8+4+8+4$   
 $= 164 \text{ ft}^2$

As ~~1 sq. ft = 10.76 ft<sup>2</sup>~~

$$1 \text{ m}^2 = 10.76 \text{ ft}^2$$

$$164 \text{ ft}^2 = x \text{ m}^2$$

$$164 = 10x$$

$$x = 164/10$$

$$\boxed{x = 16.4 \text{ m}^2}$$

Total area of wall =  $L \times H$   
 $= 16.4 \times 3 \text{ m}$   
 $= 49.2 \text{ m}^2$

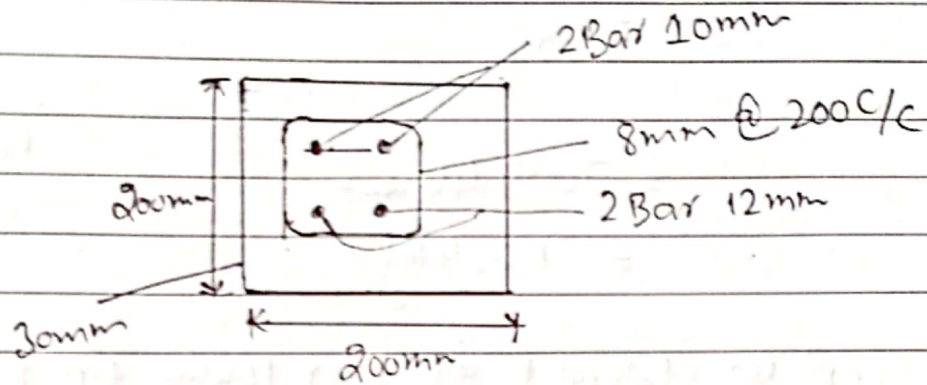
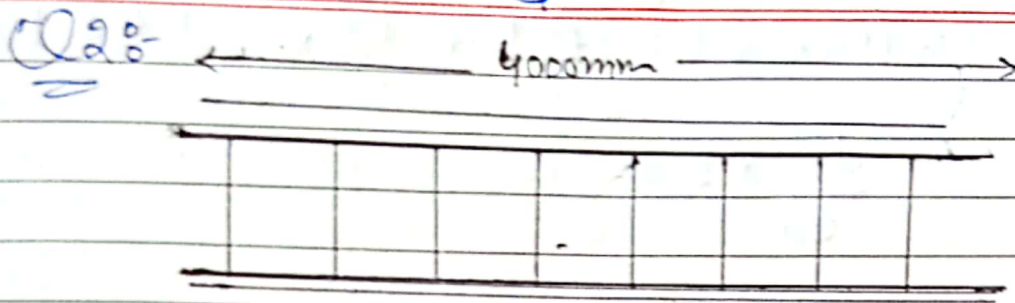
Total area of door =  $2 \times 1$

Total area of door =  $2 \text{ m}^2$

Deduct the area of the doors from total area of wall

$$\text{Plaster area} = 49.2 - 4(2 \text{ m}^2)$$

$$\boxed{\text{Plaster Area} = 41.2 \text{ m}^2}$$



Sol:

(i) step 1:- (length of bottom bars)

length of steel 12mm = (length of beam - cover) × No of bars.

$$\text{length of steel 12mm} = (4000 - 2(30)) \times 2$$

$$\text{length of steel 12mm} = 7880\text{mm}$$

$$\text{length of steel 12mm} = 7.88\text{m}$$

(ii) step 02:- (length of bar 10mm top bars)

length of steel 10mm = (length of beam - cover) × No of bars.

$$\text{length of steel 10mm} = (4000 - 2(30)) \times 2$$

$$\text{length of steel 10mm} = 7880\text{mm}$$

$$\text{length of steel 10mm} = 7.88\text{m}$$

step 3:- (Weight of bar 12 mm bottom bars)

$$= \frac{d^2}{162} \times L$$

$$= \frac{(12)^2}{162} \times 7,880$$

$$= 7004.44 \text{ mm}$$

$$= 7.004 \text{ kg.}$$

step 4:- (Weight of bar 10mm top bars)

$$= \frac{d^2}{162} \times L = \frac{(10)^2}{162} \times 7880$$

$$= 4864.19$$

$$= 4.86 \text{ kg}$$

step 5:-

$$\text{No of stirrups} = \frac{\text{length of beam} + 1}{\text{spacing}}$$

$$\text{No of stirrups} = \frac{4000}{200} + 1$$

$$\text{No of stirrups} = 21 \text{ No.s}$$

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Step 6:

cutting length of stirrup

$$= 2(x) + 2(y) + \text{hook} (10d) - \text{bend} (2d)$$

$$= 2(132) + 2(132) + (2 \times 10 \times 8)$$

$$- (5 \times 2 \times 8) + 264 + 264 + 160$$

$$- 80$$

$$= 608 \text{ mm} = 0.608 \text{ m}$$

Step 7:-

Total length of stirrup

$$= \text{cutting length} \times \text{No of stirrup}$$

$$= 0.608 \times 21$$

$$= 12.76 \text{ m}$$

Step 8:-

Weight of stirrup

$$= \frac{d^2}{162} \times L = \frac{8^2}{162} \times 12.76$$

$$\text{W. of stirrup} = 5 \text{ Kg}$$

~~S.No~~ Type of bar dia No. of bar L T.L

⑦

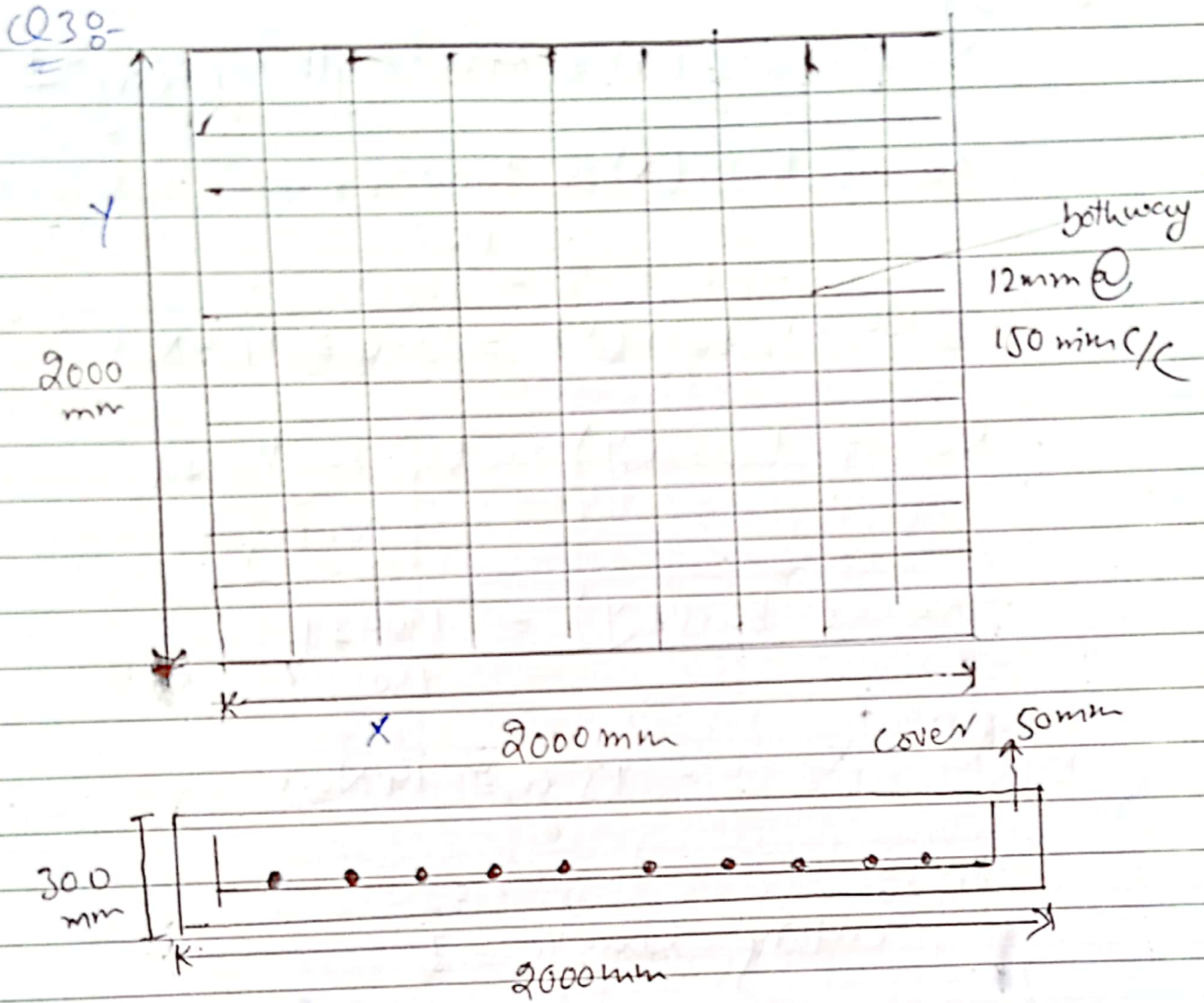
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S.NO	Type of bar	Dia	No's	L	T.L	unit W	Total weight	Notes
1	Top bar	10	2	7.8	15.6	0.61	9.51	$d^2 = \frac{10^2}{162}$ $= 0.61$
2	Bottom bar	12	2	7.8	15.6	0.89	13.88	$d^2 = \frac{12^2}{162}$ $= 0.89$
							23.394	
							1.16	

Total  
 add 5% wastage  
 Gross total

24.56 kg





Sol:-

step 1:-

Effective length (x) = length - both side cover

$$\text{Effective length (x)} = 2000 - 2(50)$$

$$\text{Effective length (x)} = 1900\text{mm}$$

$$\text{Effective length (y)} = 2000 - 2(50)$$

$$\text{Effective length (y)} = 1900\text{mm}$$

(8) (9)

Step 28

$$\text{No of bars (x)} = \frac{\text{Eff. length}}{\text{spacing}} + 1$$

$$\text{No of bars (x)} = \frac{1900}{150} + 1$$

$$\text{No of bars (x)} = 13.6 \cong 14 \text{ No's}$$

$$\text{No of bars (y)} = \frac{\text{Eff. length}}{\text{Spacing}} + 1$$

$$\text{No of bars (y)} = \frac{1900}{150} + 1$$

$$= 13.6 \cong 14 \text{ No.s}$$

Step 38-

cutting length = ?

$$\text{Along (x)} = \text{Eff. length} + (\text{bends}) - \text{bent deduction}$$

$$\text{Along (x)} = 1900 + 2(300 - 50 - 50) - 2(2 \times 12)$$

$$\text{Along (x)} = 2252 \text{ mm}$$

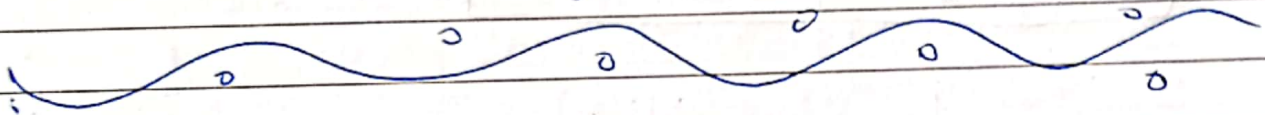
$$\text{Along (x)} = 2.252 \text{ m}$$

$$\text{Along (y)} = 1900 + 2(300 - 50 - 50) - (2(2 \times 12))$$

$$= 2252 \text{ mm}$$

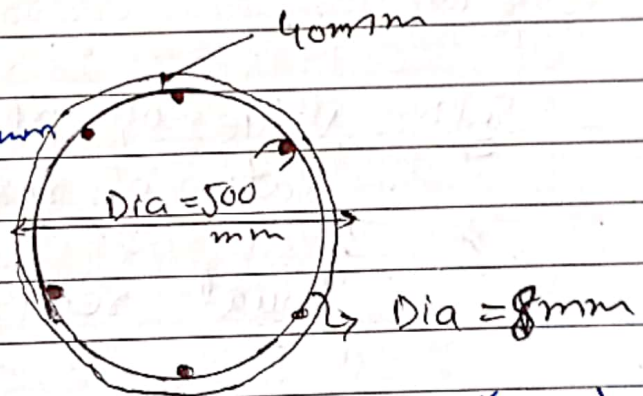
S.No	Type of bar	Dia mm	No	Length (m)	Total length (m)	Weight (kg/m)	T.W Kg	Notes
1	(X) direct	12	14	2.252	31.528	0.89	28	$12^2/162 = 0.89$
2	(Y) direct	12	14	2.252	31.528	0.89	28	$12^2/162 = 0.89$

Gross weight = 58.8 or 59 kg      Total = 56 kg  
 Add 5% wastage = 2.8 kg



(i) 40  
 (ii)

Dia of column = 500 mm



$$\text{Dia of stirrup c/c} = 500 - 2(40) - (4+4) = 412 \text{ mm}$$

$$\text{parameter of stirrup} = \pi d$$

$$= 3.14 \times 412$$

$$= 1293.68 \text{ mm}$$

$$\text{Hook length} = 10D = 10 \times 8 = 80 \text{ mm}$$

$$2 \text{ Hook length} = 2 \times 80 = 160 \text{ mm}$$

cutting length of stirrup

$$= \text{Parameter of stirrup} + \text{Hook length}$$

$$= 1293.68 + 160$$

$$= 1453.68 \text{ mm}$$

cutting length of stirrup = 1.453 m

Q48 (ii)

Sol! value of plot = 350,000

rate of rent = 6%

Annual rent of plot

$$= 350,000 \times \frac{6}{100}$$

Annual rent = 21,000  
per plot

value of building structure  
= 420,000/-

rate of rent = 8%

(12)

$$\begin{aligned} \text{Annual rent for structure} &= 420,000 \times \frac{8}{100} \\ &= 33600/- \end{aligned}$$

$$\text{Total Annual rent} = 21000 + 33600$$

$$\text{Total Annual rent} = 54600/-$$

$$\text{Monthly rent} = 54600 / 12$$

$$\text{Monthly rent} = 4550$$

Q5:-

Ans:- Types of Alternative Dispute Resolution:-

① Arbitration:-

A process in which a neutral third party hears ~~both~~ both sides of the dispute and ~~making~~ makes a binding decision.

For example: often used in labour dispute b/w unions and companies.

② Negotiation:- A process whereby both parties communicate to reach a mutually acceptable agreement.

12 13

### ③ Mediation:

A process in which a neutral third party (a mediator) intervenes to bring opposing parties to an agreement.

### Arbitration act - 1996, S, 1:

(i) The object of arbitration is obtain the fair resolution of dispute by an ~~important~~ impartial tribunal (equality) with unnecessary delay or expense.

(ii) The parties should be free to agree how their dispute are ~~to~~ resolved subject only to such ~~safeguarded~~ as are necessary in the public interest.

(iii) In matter governed by this part in court should not intervene except as provided by this part.

### Arbitration act - 1996 S, 9

Where a party ~~try~~ tries to ignore an arbitration clause agreed in a contract, the court in which he or she is trying to make his claim will order stay of proceeding so that the matter may be ~~reference~~ referred

(14)

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in arbitration as agree in the court.

Arbitration act 1996 S, 18

The parties are free to agree what is to happen in the event of a failure of a procedure for the appointment of the arbitral tribunal. There is no failure if an appointment is duly made under section (17) power in case of default to appoint sole arbitrator unless that appointment is set aside.

End