

Assignment/Quiz (Sep/2020)

Subj: Quantity Surveying & Estimation; 4 hours.

Instructor: Engr. @ IMTIAZ KHAN: Marks = 50

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batch: 2016

Dep: BS (Civil Engineering)

Q No # 01 ?

Sol: External length of building.

$$\textcircled{1} = 14 + 14 + 2(1.125) + 0.75$$

$$\boxed{= 31 \text{ ft}}$$

External Breadth of building

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

$$\boxed{= 23}$$

Plinth area of building = 31×23

$$\boxed{= 713 \text{ ft}^2}$$

Rate of construction = Rs. 300 / sq ft

Cost of construction = 713×300

$$\boxed{= \text{Rs} = 213900/-}$$

Water supply and Sanitary 10%

$$= \frac{213900 \times 10}{100}$$

$$\boxed{\text{Rs} = 21390/-}$$

Cost of Electric supply is 10% 3

$$= \frac{213900 \times 10}{100}$$

$$= \text{Rs} = 21390 \text{ /-}$$

Cost of gas supply is 5% = $\frac{213900 \times 5}{100}$

$$= \frac{10695}{100}$$
$$= \text{Rs} = 10695 \text{ /-}$$

total cost = 213900 + 21390 + 21390 + 10695

$$= \text{Rs} = 267375 \text{ /-}$$

Contingencies = 3% of total cost.

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

$$= 8021.25 \text{ /-}$$

Grand total = 267375 + 8021.25

$$\text{Rs} = 275396.25 \text{ /-}$$

Q no 01 part b)

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Sol: →

Step 01 (for one Room) (total wall length)

$$= 14 + 14 + 12 + 12$$

$$= \cancel{52} \text{ ft} = 15.8496 \text{ m}$$

Step 02: → (total area of Wall, Door)

$$\text{Total area of wall} = L \times H$$

$$= 52 \times 3$$

$$= 15.8496 \times 3$$

$$= 47.5488 \text{ m}^2$$

$$\text{total area of Door} = 2 \times 1$$

$$= 2.59 \text{ m}^2$$

Step 03
Plater Area = Area of wall - Area of Door

$$= 47.5488 - 2$$

$$= 45.5488 \text{ m}^2$$

$$\therefore 1 \text{ sq. m} = 10.76 \text{ sq. ft}$$

for Second Room: →

Some steps should be allowed: →

For bath and Kitchen:

⇒ step 01: (total wall length)

$$\text{Bath} = 4 + 8 + 4 + 8 = 24 \text{ ft} = \boxed{7.31 \text{ m}}$$

$$\text{Kitchen} = 8 + 8 + 8 + 8 = 32 \text{ ft} = \boxed{9.75 \text{ m}}$$

Step 02 (Total area of wall, door)

$$= 9.75 \times 3$$

$$\boxed{= 29.25 \text{ sq. m}}$$

total area of wall for bath = $L \times H$

$$= 7.31 \times 3$$

$$\boxed{= 21.93 \text{ sq. m}}$$

Step 03 (plaster area for Kitchen)

= Area of wall - area of door

$$= 29.25 - 2$$

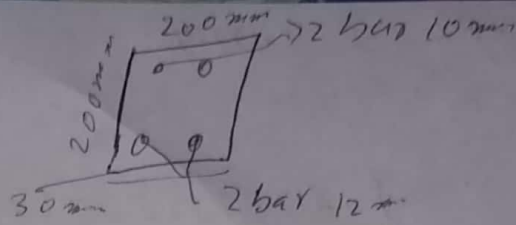
$$\boxed{= 27.25 \text{ sq. m}}$$

or

$$\boxed{296.1152 \text{ ft}^2}$$

Q no # 02? 7722

Given length of beam
= 4000mm



6.

Step 01:- length of bottom bars)

L. of 12mm \rightarrow (length of beam - cover) \times No of bar

$$= (4000 - 2(30)) \times 2$$

$$= 7880 \text{ mm or } 7.88 \text{ m}$$

Step 02 (length of top bars)

top bars length (10mm) = (4000 - 2(30)) \times 2

$$= 7880 \text{ mm or } 7.88 \text{ m}$$

Step 03 (weight of 12mm bars)

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

$$= \frac{12^2}{162} \times 7.88$$

$$= 7 \text{ kg}$$

Step 04 (weight of 10mm bar)

$$\left(\frac{d^2}{162}\right) \times L$$

$$= \left(\frac{10^2}{162}\right) \times 7.88$$

$$= 4.86 \text{ kg}$$

for stirrups

No of stirrups (length of beam / spacing) + 1

$$= \left(\frac{4000}{200}\right) + 1$$

$$= 21 \text{ NO'S of bar}$$

⇒ cutting length of stirrups
 $(2(x) + 2(y) + hoo(10d) - bend(2d)) \times 7$
 $= (2 \times 132) + 2(132) + (2 \times 10 \times 8) - (5 \times 2 \times 8)$
 $= 264 + 264 + 160 - 80$
 $= 608 \text{ mm or } = 0.608 \text{ m}$

Total length of stirrups = 0.608×21
 $= 12.768 \text{ m}$

Weight of stirrups: $(\frac{d^2}{162}) \times L$
 $= (\frac{8^2}{162}) \times 12.768$
 $= 5 \text{ Kg}$

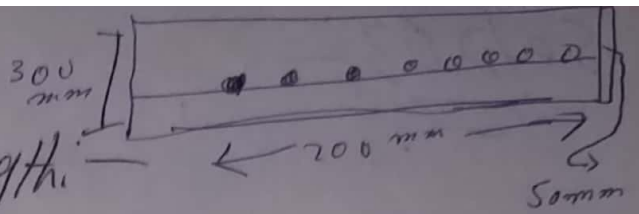
Types of bar	Dia (mm)	No.s	Total length (m)	Unit weight (Kg)	Total weight Kg
b. Hom	12	2	7.88	0.89	7 Kg
TOP	10	2	7.88	0.61	4.86 Kg
Stirrups	8	21	12.768	0.39	5 Kg
Total					16.86
s/wastage					0.843
Grand Total					17.703 Kg

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Q no H03? Sol: →

Step 01: - Effective length



$$\text{Eff length (x)} = \text{length} - b/\text{side covers}$$

$$= 2000 - 2 \times 50 = 1900 \text{ mm}$$

$$\boxed{1900 \text{ mm}}$$

$$\text{Effective length (y)} = 200 - 2 \times 50 =$$

$$\boxed{= 1900 \text{ mm}}$$

Step 02:

NO's of bar

$$\text{No. of bar (x)} = \text{eff. L} / \text{spacing} + 1$$

$$= (1900 / 150) + 1$$

$$\boxed{= 13.6 \text{ say } = 14 \text{ NO's bar}}$$

$$\text{no's of bar (y)} = \text{ef L} / \text{spacing} + 1$$

$$= (1900 / 150) + 1$$

$$\boxed{= 13.6 = 14 \text{ NO's of bar}}$$

Step 03:- Cutting length:-

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

$$= 1900 + 2(300 - 50 - 50) - (2(2 \times 12))$$

$$= 2952 \text{ mm or } 2.95 \text{ m}$$

$$(\text{eff. L} + (\text{bends})) - \text{bent deduction 2nd.}$$

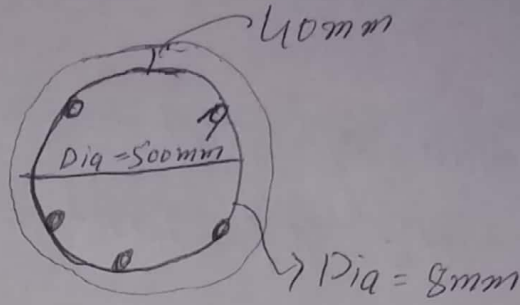
$$\text{Along (y)} = 1900 + 2(300 - 50 - 50) - (2(2 \times 12))$$

$$= 2252 \text{ mm or } 2.25 \text{ m}$$

S.NO	type of bar	(dia mm)	NO	Length m	total length	Weight kg/m	total weight	total weight	
1	x-direct	12	14	2.25	22.5	0.89	20	$12^2/162 = 0.89$	
2	y-direct	12	14	2.25	22.5	0.89	20	$12^2/162 = 0.89$	
Total							42 kg		
add 3% weight							2%		
Gross Weight							44 kg		

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part i)



Solo →

Circular Column

$$\text{Dia of Column} = 500 \text{ mm}$$

$$\text{Dia of Strip } c_c = 500 - (2 \times 40) - (4 + 4)$$

$$= 420 \text{ mm}$$

$$\text{Parameter of Stirrup } \pi d = 3.142 \times 420$$

$$\pi d = 1319.64 \text{ mm}$$

$$\text{Hook length} = 10D$$

$$= 10 \times 8 = 80 \times 2 = 160 \text{ mm}$$

Cutting length of stirrups:

Parameter of Stirrups + Hook length

$$= 1319.64 + 160 \text{ mm}$$

$$= 1479.64$$

cutting length of stirrup

$$\frac{1479.64}{1000}$$

$$\Rightarrow 1.4796 \text{ m}$$

Q no 4

part ii

Sol: \rightarrow Value of plot = 350000/-
Rate of rent = 6%/-

$$\text{Annual rent for plot} = \frac{350000 \times 6}{100}$$

$$= 21000/-$$

Value of building structure = 420000/-

Rate of rent = 8%

$$\text{Annual rent for structure} = \frac{420000 \times 8}{100}$$

$$= 33600$$

Total annual rent = 21000 + 33600

$$\text{Year} = \frac{54600}{12} = 4550/-$$

$$\text{Day} = \frac{4550}{30} = 151.666/-$$

$$\text{Day} = \frac{54600}{30} = 1820/-$$

$$\rightarrow \frac{4550}{30} = 151.666/-$$

Qno#05?

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Ans types of ADR

The following are the types of alternative dispute resolution.

① Arbitration: arbitration utilizes the help of a neutral third party and is similar to an informed trial - after hearing each side the third party issues a decision that the disputing parties may have agreed to building or non building.

② Mediation: - the first glance mediation arbitration is ~~incredibly~~ similar. one of the main differences is that a mediation or impartial third party can not force the parties to agree and is not allowed to decide the outcome of the dispute -

But arbitration and mediation are ¹³ the most common types of alternative dispute resolution.

③ Med-Arb = this form of ADR is one in which the ~~arbitrator~~ arbitrator starts as a mediator but should the mediation fail - the arbitrator will impose a binding decision Med-Arb.

4) Mini trial: a mini trial is not so much a trial as it a settlements process - each party presents their summarized case.

⑤ Summary jury trial: An ~~SA~~ (SJT) is similar to a mini trial however the case is presented jury to a mock jury the mock jury produces an advisory re predict.

⑥ Negotiation

this form of ADR is often overlooked because of how obvious it is. In impartial negotiation, there is no impartial third party to restrict the party in their negotiation. So the party together to come to a compromise.

(Arbitration Act 1996 Section 1)

- ① This act may be called the Arbitration and Conciliation Act 1996
- ② It extends to the whole of India. provided that, I, III and IV shall extend to the State of Jammu and Kashmir
- ③ It shall come into force on such date as the Central Government may by notification in the Official Gazette appoint

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Section - 17: →

- ① For the appointment of ¹⁵ a guardian for a minor or the person of unsound mind for the purposes of arbitral proceeding.
- ② For an interim measure of protection in respect of any of the following matters.

Section - 18:

① Equal treatment of parties
Parties shall be treated with equality and each party shall be given a full opportunity to represent his case. —

advantages ADR

- ① more flexibility
- ② Select your own or arbitral or
- ③ A jury is not involved.
- ④ Expenses are reduced.
- ⑤ ADR is speedy

- ⑥ the result can be kept confidential. 16
- ⑦ party participation.
- ⑧ fosters cooperation.

disadvantages. ADR

- ① there is no guaranteed resolution.
- ② limit an arbitration award.
- ③ discovery limitation.
- ④ arbitrator can not be appealed.
- ⑤ free for the natural
- ⑥ may have no choice.
- ⑦ non building arbitration.
- ⑧ wording.

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