Name :- M. Hasnain

ID :- 7817

Sec :- A

Subject :- Quantity and Estimation

Instructor :- Engr. Imtiaz Khan.

Qno 1

Part (1)

Solution:-

External Length of building.

$= 14' + 14' + 2(1.25) + 0.75$

$= 31\ ft$

External Breadth of building

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

$= 23'$

Plinth Area of the building $= 31 \times 23$

$= 713 ft^3$

Rate of Construction = Rs. 300/sft

Cost of construction $= 713 \times 300$

$= Rs.\ 213900/-$

water supply and sanitary 10%.

$= \frac{213900 \times 10}{100} = Rs.\ 21390$

Cost of electric supply is 10%.

$= \frac{213900 \times 10}{100} = Rs.\ 21390$

Cost of gas supply is 5%.

$= \frac{213900 \times 5}{100} = Rs\ 10695$

Total cost = 213900+21390+21390+10695 = Rs 267375

Contingencies 3% of total cost

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

$$= 8021.25$$

Grand total = 267375 + 8021.25

$$= 275396.25$$

Qno(1)

Part (ii)

Solution:

Height of walls = 3m

Door size = 2m+1m

For bedroom

Step:- 1 (Total wall length)

length of wall = 14+12+14+12

= 52 ft = 52/3.23 = 15.8m

Step:- 2 (Total Area of wall)

Total area of wall = Length + Height

= 15.8 + 3 = 47.7m²

Total area of door = 2×1 = 2m²

Step :-3 (Deduct door area from area of wall)

Plaster area = Area of wall - Area of Door

= 47.7-2

Plaster area = 45.7m²

or in square feet

= 45.7 × (3.28)²

= 491.65 Ft²

As bedroom ② has the same dimensions of Area of wall, Door, so its plaster area will be same as of bedroom ①

→ Plaster area = 45.7m²

→ Plaster area = 491.65 Ft²

For Bath Room:

⇒ Total length of wall = 4'+8'+4'+8'
= 24 Ft
= 24/3.28 = 7.3m

→ Total area of wall = Length × Height
= 7.3 × 3 = 21.9m²

→ Total area of Door = 2m × 1m
= 2m²

→ Plaster Area = Area of wall - Area of Door
= 21.9 - 2
= 19.9m²

Plaster area = 19.9m²

or in square feet.

= 19.9 × (3.28)²
= 214.09 ft²

For Kitchen :-

→ Total length of wall = 8'+8'+8'+8'
= 32 ft = 32/3.28 = 9.7m

→ Total Area of wall = Length × Height
= 9.7 × 3 = 29.1m²

→ Total Area of Door = 2m × 1m = 2m²

→ Plaster Area = Area of wall - Area of Door
= 29.1 - 2 = 27.1m²

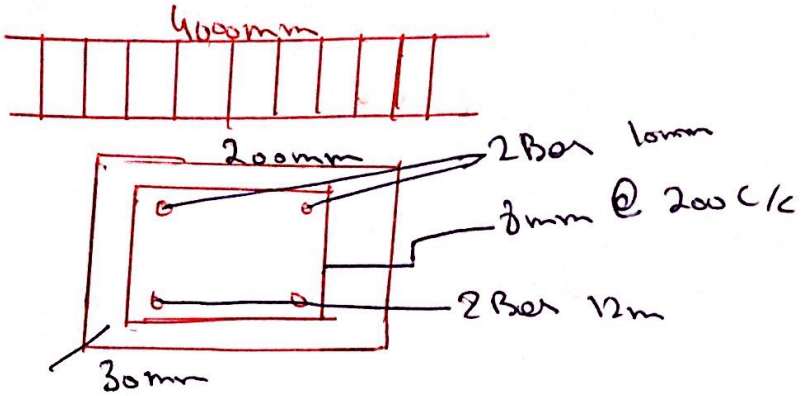
or in square feet

= 27.1 × (3.28)²

Plaster area = 291.55ft²

Q2

Solution



Step:- 1 (length of Bar 12mm bottom bar)

length of steel 12mm = (length of beam - cover) + No of bar

= 4000 - 2(30) + 2

= 3880mm or 3.88m

Step:- 2 (Length of Bar 10mm top bars)

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

= 4000 - 2(30) + 2 = 3.88m

Step:- 3 (weight of bar 12mm bottom bar)

$= (d^2/162) + L$

$= (12^2/162) + 3.88$

$= 3.448\ kg.$

Step:-4 (weight of bar 10mm top bars)

$= (d^2/162) \times L$

$= (10^2/162) \times 3.88$

$= 2.4\ kg$

Step:-5 (No of stirrups)

(length of beam / spacing) + 1

$= (4000/300) + 1$

$= 21$ No's

Step :- 6 (cutting length of stirrup)

(2(x)) + (2(y)) + hook(10d) - bend(2d if 90 degree)

= (2 × 142) + 2(142) + (2 × 10 × 8) - (5 × 2 × 8)

= 284 + 284 + 160 - 80 = 648 mm or 0.64m

Step - 07 (Total length of stirrup)

Cutting length × No of stirrups.

= 0.648 × 21 = 13.608m

Step - 08 (weigth of stirrup)

= (d^2/162) × L

= (8^2/162) × 13.608

= 5.38 kg.

BBS of RCC Beams

S.no	Type of Bar	Dia	No's	Length	unit weigth
		mm		m	
1		10 mm	2	3.88	2.4 Kg
2		10 mm	2	3.88	3.448kg

Qno (3)

Step = 01:-

Effective length:-

Effective length(x) = length - b/side cover

= 2000 - 2×50 = 1900mm

Eff. length(y) = 2000 - 2×50 = 1900mm

Step 02:-

No's of Bar

Nos of Bar(x) = eff. length / spacing + 1

= (1900/150) + 1 = 13.6

= 14 Nos

Nos of Bar(y) = eff. length / spacing + 1

= (1900/150) + 1 = 13.6 = 14.

Step 03:-

cutting length:-

Along(x) = [eff. length + (bends)] - bend deductions.

= 1900 + 2(300 - 50 - 50] - (2(2+12)]

= 2252mm or 2.5m

Along(y) = [eff. length + (bends)] - bend deduction(2d)]

= 1900 + 2(300 - 50 - 50) - (2(2+12)]

= 2252mm

= 2.5m

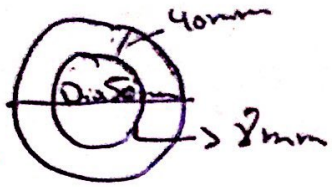
Sno	Type A Bar	Dia (mm)	No	Length m	Total Length	weight lbs/(m)	total weight	Total weight
1	x-direct	12	14	2.25	22.5	0.89	20	$12^2/162$ =0.89
2	ydirect	12	14	2.25	22.5	0.89	20	$12^2/162$ =0.89
Total							42kg	
Add 5% weight							2%	
Cross weight							44kg	

Qno 4

Part (1)

Solution

Culting length For the circular strips.



Circular column

Dia of column = 500mm

Dia of strip C/C = 500 - (2+40) - (4+4)

= 500 - 80 - 8 = 412 mm

Parameter of stirrup = πd

= 3.145 × 412 = 1294.504mm

1-Hook Length = 10D = 10 × 8 = 80 × 2 = 160mm

Culting length For stirrup = Parameter of stirrup + Hook Length

= 1294.504 + 160 = 1454.504mm

1m = 1000mm

Now converting mm to m

$= \frac{1454.504}{1000} = 1.454544m$

Req. Answer = 1.45454 meter.

Qno 4
Part (ii)
Solution:-

Value of plot = 350000 /-

Rate of Rent = 6 /-

Annual rent For plot = $\frac{350000 \times 6}{100}$ = 21000 /-

Value of building structure = 420000 /-

Rate of rent = 8 /-

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

$= \frac{3360000}{100}$

$= 33600$

Total Annual rent = 21000 + 33600

$= \frac{54600}{12} = 4550$

Qno(5)

Ans:-

Types of Alternative dispute resolution

-> Arbitration

-> Mediation

-> Negotiation

-> Conciliation

Arbitration:-

-> Arbitration is the adjudication of a dispute by one or more specially appointed experts or lawyers

-> Arbitration involves an independent third party who actually makes suggestions and actually imposes a decision on the parties.

-> Abitration is governed by the Arbitration act 1996

-> Arbitration is binding.

Arbitration Act-1996, S.1

(a) The object of arbitration is to obtain the Fair resolution of disputes by an impartial tribunal (Equality) without unnecessary delay or expense

(b) The parties should be Free to agree how their disputes are resolved, subject only to such safeguards as are necessary in the public interest.

(c) In matters governed by this Part the court should not intervene except as provided by this Part.

Arbitration Act. 1996, S.9

→ where a party 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 a "stay" (i-e stop) of proceedings so that the matter may be reffered to arbitration as agreed in the Contract.

Arbitration Act, 1996, S.18

→ where there is no aggrement a party can apply to a court under the Arbitration Act 1996 s.18 to have one appointed by the court.

* MEDIATION

→ Parties in a dispute may refer their dispute to an independent third party who will act a go-between.

→ The mediator will help the parties discuss their disputes in order to try to settle it.

→ Mediation involves an impartial third party who listens and direct discussion but does not suggest outcomes.

→ Mediation is not binding.

* Conciliation

→ Similar to mediation but the conciliator may suggest a way to settle to the dispute.

→ If parties in litigation refuse an offer of conciliation without good reason then even if they win the case, the Judge can refuse to award them some of all their legal cose.

→ Conciliation is not binding

Negotiation:

→ Negotiation requires parties to bargain without outsider assistance, exchanging compromises to reach a solution. In this approach parties can begin bargaining discussions at the bargining of a dispute without the presence of legal representation.

→ For negotiation to succeed, it requires the complete cooperation of the parties. If participants lack the neccessary motivation to resolve the conflict through compromise

→ Like mediation, settlement discussions within a negotiation context are controlled entirely by the parties.

→ Negotiation is also not binding

Advantages:-

-> Reduced time in dispute - It takes less time to reach a final decision.

-> Reduced costs in relating to the dispute resolution - It requires less money i-e Its cheap.

-> Produce good results - settlement rates of upto 85%.

-> Improved satisfaction with the outcome or manner in which the dispute is resolved among disputants

-> Increased compliance with agreed solutions.

Disadvantages:-

-> It can be used as a stalling tactic.

-> Does not produce legal precedents.

-> Parties may have limited bargaining power. Parties do not have much of a say.

-> Exclusion of pertinent parties weakens final agreement.

-> Parties are not compelled to continue negotiation or mediation.