USN | | | | | | | | | | **15ENG46**

Fourth Semester B.Arch. Degree Examination, Aug./Sept.2020
Specification, Quantity and Costing of Buildings

Time: 3 hrs.   Max. Marks: 100

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

Module-1

1 a. What is an estimate?   **(02 Marks)**
   b. Explain:
      i)   Item rate estimate
      ii) Supplementary Estimate
      iii) Plinth Area Estimate.   **(12 Marks)**
   c. Explain Earnest Money Deposit and Security Retention.   **(06 Marks)**

OR

2 Write detailed technical specification to the following items of work.
   a. Earthwork excavation for foundation in hard soil.   **(06 Marks)**
   b. Providing and laying PCC M20 grade concrete for Roof slab. **(07 Marks)**
   c. Providing and constructing Burnt brick masonary is CM1:6 for super structure using table moulded bricks.   **(07 Marks)**

Module-2

3 Fig.Q.1 shows the plan of 3 roomed Residential Building with sections enclosed. Calculate the Quantity of below mentioned items of work only by centre line method.
   a. Calculate of Net length for below mentioned items.   **(08 Marks)**
   b. Earthwork excavation for foundation in hand soil.   **(04 Marks)**
   c. Providing and laying PCC 1:4:8 for foundation.   **(04 Marks)**
   d. Providing and laying PCC 1:3:4 for foundation Plinth as D.P.C.   **(04 Marks)**

OR

4 Fig.Q.2 shows the plan and section of column footing, calculate the below mentioned quantities for 10 such columns.
   a. Earthwork excavation for foundation in hard soil.   **(03 Marks)**
   b. Providing and laying PCC 1:4:8 for foundation.   **(02 Marks)**
   c. Providing and laying M20 grade concrete for footing.   **(07 Marks)**
   d. Providing and laying M20 grade concrete for pedestal.   **(03 Marks)**
   e. Providing and laying M20 grade concrete for columns.   **(05 Marks)**

Module-3

5 a. What is basic cost? Why is basic cost fixed in a project? Briefly explain.   **(08 Marks)**
   b. In the tender, basic cost of steel for reinforcement is Rs.55000/MT. The total quantity of steel used is 15.00MT for entire project, and average purchase price is Rs.60,000/MT. Write if the contractor is eligible to claim the difference in cost or pay the owner.   **(06 Marks)**
   c. What are factors affecting the rate when the analysis is made?   **(06 Marks)**

OR

6   From the 1ˢᵗ principles, Conduct Rate Analysis for below mentioned items of work.

    a.   Providing and laying PCC 1:4:8 for foundation using 40mm and down size coarse aggregates.   **(06 Marks)**

    b.   Providing and constructing burnt brick masonary is CM1:6 for superstructure using table moulded bricks.   **(07 Marks)**

    c.   Random rubble masonary in CM1:6 for foundation using hammer dressed stones.
[Basic cost of cement → Rs.350/Bags, Sand → Rs.3500/mt³, coarse aggregate 40mm → Rs.635/mt³, Bricks → Rs.900/No stones Rs.18.00/No].   **(07 Marks)**

Module-4

7   The details of 3 Bed Room unit is shown in Fig.1. Calculate the below mentioned items of work by centre line method.

    a.   Providing and constructing size stone masonary is CM1:6 for foundation.   **(08 Marks)**

    b.   Providing and constructing Burnt brick masonry is CM1:6 for super structure only main walls.   **(10 Marks)**

    c.   Providing and fixing door frame and paneled shutter.   **(02 Marks)**

OR

8   Following items of works are to estimated for an interior fit out. Prepare a detailed estimate.

    a.   Provide and laying false ceiling with necessary frame work and plaster of Paris.   **(06 Marks)**

    b.   Providing and laying 2 coats of plastic Emulsion Paint to ceiling and Internal walls over a coat of primer.   **(08 Marks)**

    c.   Providing and laying Marble flooring in CM1:6. With necessary pointing.

       Size of office room → 12.0mt × 8.0mts

              Door D → 1.00mt × 2.10mts − 1No

              Window W → 1.50mt × 1.50mts → 3No's

              Height of office room → 3.50mts

              Skirting Height → 0.10mt   **(06 Marks)**
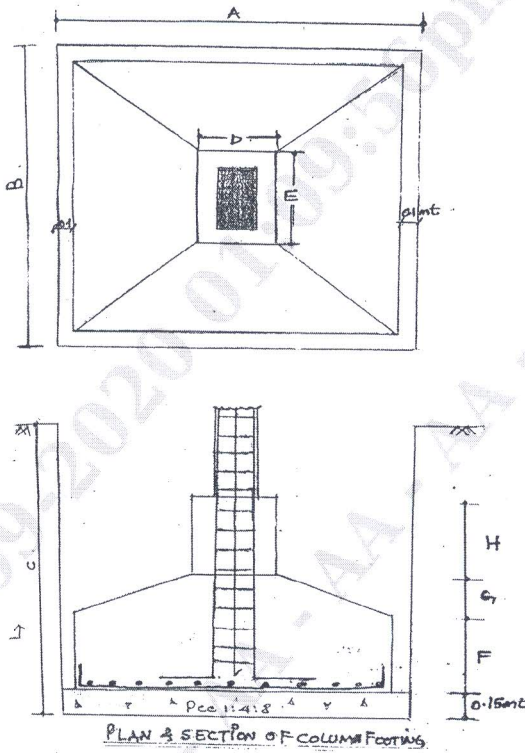
Module-5

9   The Fig.Q.3 enclosed shows the details of septic tank. Estimate the below mentioned items of work only.

    a.   Earth work excavation for foundation in hard soil.   **(04 Marks)**

    b.   Providing and laying PCC 1:4:8 for foundation using 40mm and down size coarse aggregates.   **(03 Marks)**

    c.   Providing and constructing Burnt brick masonary is CM1:4 for the side walls of septic tank.   **(09 Marks)**

    d.   Providing and laying M20 grade concrete for Roof slab using 20mm and down size coarse aggregates.   **(04 Marks)**

OR

10   Estimate the Quantity of Earth work required for 180mts lengths of road by "Mean depth method" from following data. Formation width = 10mts, side slope 2H:1V.

Chainage in mts	0	30	60	90	120	150	180
RL of ground in mts	112.0	111.80	111.70	111.60	111.50	111.30	111.40
Formation level in mts	←		112.60mts				→

       (20 Marks)

PLAN AT SILL LEVEL

KITCHEN
3.2X3.0

ROOM 2
3.2X3.2

ROOM 1
3.2X3.2

W.C
1.5X1.0

BATH
1.8X1.85

ROOM 3
3.0X3.25

LIVING
4.3X5.5

20 cms thick Wall

Schedule of opening

Type	size	Reqd No's
D	1.05X2.10	1
D1	0.90X2.10	5
pen 'o'	0.90X2.10	1
D2	0.75X2.10	2
W	1.80X1.20	1
W1	1.50X1.20	6
W2	1.20X1.05	2
V	0.9x0.6	2

COPING concrete

20cms thick PARAPET WALL

RCC ROOF SLAB

30cms thick BBM in cm.

RCC THROUGH LINTEL(0.3X0.2)

Cdh Concrete 7.5cms thick

DPC for Plinth

SSM in cm 1:6

Pcc 1:4:8 for fodn

0.65
0.15mt
3.10mt
0.45mt
1.0mt
0.10mt
0.45mt
0.60mt
0.75mt
1.0mt
0.40
0.20
0.15

SECTION XX

SECTION Y-Y

20cms thick BBM

Plinth Concrete

SSM in cm 1:6

Pcc 1:4:8 for fodn

0.45mt
0.10mt
0.45
0.60mt
0.10mt
0.60mt

Fig.Q.1

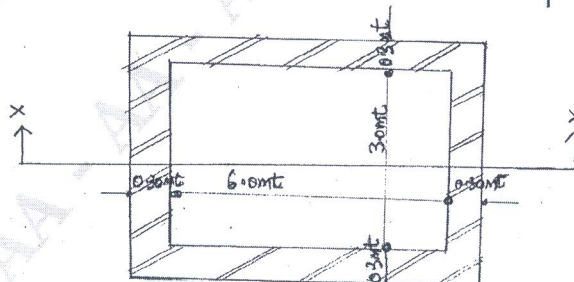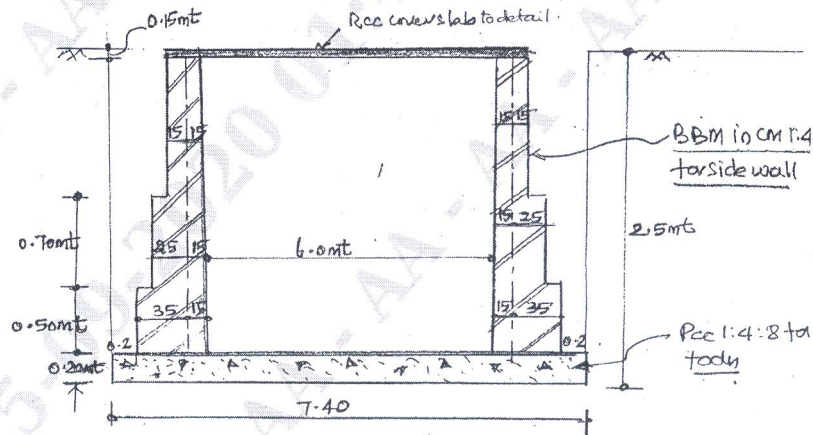| A	B	C	D	E	F	G	H
2.0mt	2.0mt	1.8mt	0.45mt	0.60mt	0.50	0.30mt	0.45mt

Column size → (0.23 × 0.45)
Height of column above pedestal → 5.0mts

Fig.Q.2

SECTION OF SEPTIC TANK : X-X

Plan of septic tank
Fig.Q.3

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