CBCS SCHEME

USN ☐☐☐☐☐☐☐☐☐☐

15ENG46

Fourth Semester B.Arch. Degree Examination, Jan./Feb. 2023

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 Estimation? Explain need for estimation and costing? **(10 Marks)**
   b. Write a note on detailed estimate. **(10 Marks)**

OR

2 Write detailed specifications for the following :
   a. 1ˢᵗ class brick work in 1 : 6 CM in super structure
   b. Earth work excavation for foundation in hard soil
   c. Providing and laying PCC roof slab with 1 : 1.5 : 3 cement concrete
   d. Providing and laying plastering to walls in CM 1 : 6. **(20 Marks)**

Module-2

3 a. What is a tender? What are the contents of a tender? **(08 Marks)**
   b. Write short notes on :
      i) Administrative sanction and technical sanction
      ii) Earnest money deposit and security deposit
      iii) Measurement book and its importance. **(12 Marks)**

OR

4 a. Explain the standard tests results considered as a part of specification and then inclusion in BOQ? (Minimum three tests to be explained). **(12 Marks)**
   b. Write a note on material safety and workers safety considered a part of specification. **(08 Marks)**

Module-3

5 a. Define the term rate analysis and mention the factors affecting it. **(06 Marks)**
   b. An RCC beam has clear span of 8m and c/s 300mm × 450mm and support of 300mm. It has 4 bar of 25mm at the bottom out of which 2 bars are centcaled at 1.5m from center of supports. It also has 2 bars of 16mm at top. Shear reinforcement is 2L – 8mm with a spacing of 150mm from both the supports till one fourth of span and remaining it is 2500mm spacing. Take weight of bars as
   25mm = 2.8kg/m, 16mm = 1.6kg/m, 8mm = 0.6kg/m. Calculate the quantity of steel. **(14 Marks)**

OR

6 Carry out rate analysis for the following, take cement = Rs. 400/bag, sand = Rs. 250/m³ and coarse aggregate = Rs. 1000/m³.
   a. Cement concrete 1 : 5 : 10 for foundation bed
   b. Brick masonry in CM is 1 : 6 super structure with 20cm × 10cm × 10m bricks
   c. 12mm thick cement plastering with 1 : 3CM
   d. Random rubble masonry in CM 1 : 6 in foundation.

   (20 Marks)

Module-4

7 Prepare a detailed estimate for the plan and c/s shown in Fig.Q7 for the following terms of work. Use centre line method :
   a. Earth work in excavation
   b. 1ˢᵗ class brickwork in super structure in CM 1 : 6
   c. PCC bed for foundation.

   (20 Marks)

OR

8 Prepare a detailed estimate for a office room of size 6m × 8m for the following items of work.
   a. Exposed modular tiles 0.6 × 1.2m
   b. False ceiling
   c. 2 coats of paints.

   (20 Marks)

Module-5

9 Estimate the quantity of earthwork by mean depth method.
   Formation width = 8m, Falling slope = 2:1, cutting slope = 1.5 : 1, Gradient – Raising gradient of 1 in 200. RL of formation at 0m is 59.50m.

Change	600	630	660	690	720	750	780	810	840	870	900
Ground level	61.20	61.25	61.90	61.25	60.80	60.45	60.20	60.35	59.10	59.45	59.70

   (20 Marks)

OR

10 Prepare a detailed estimate for a septic tank with soak pit shown in Fig.Q10 for the following items of work.
   a. Earthwork in excavation
   b. 1ˢᵗ class brick work for septic tank
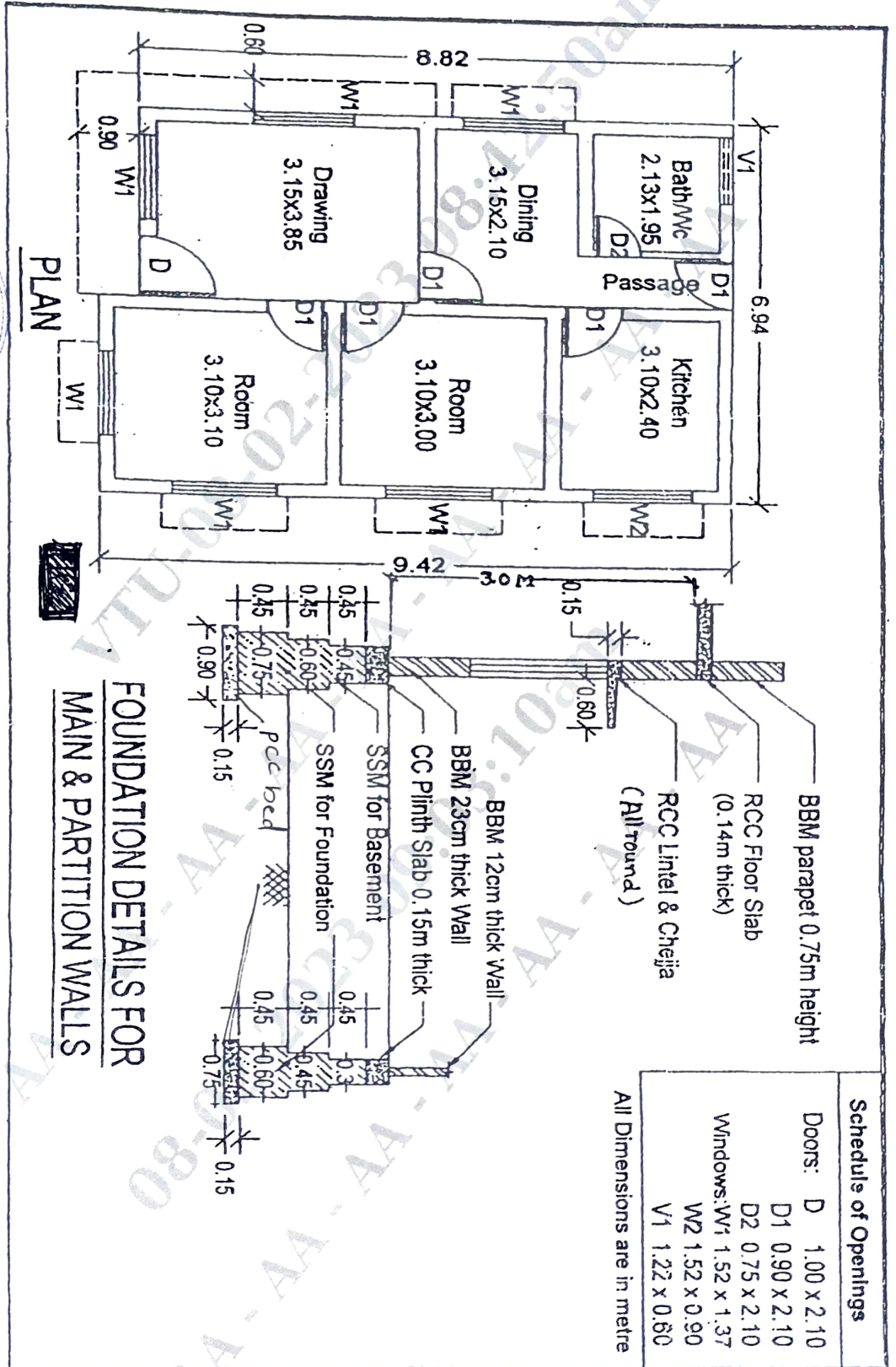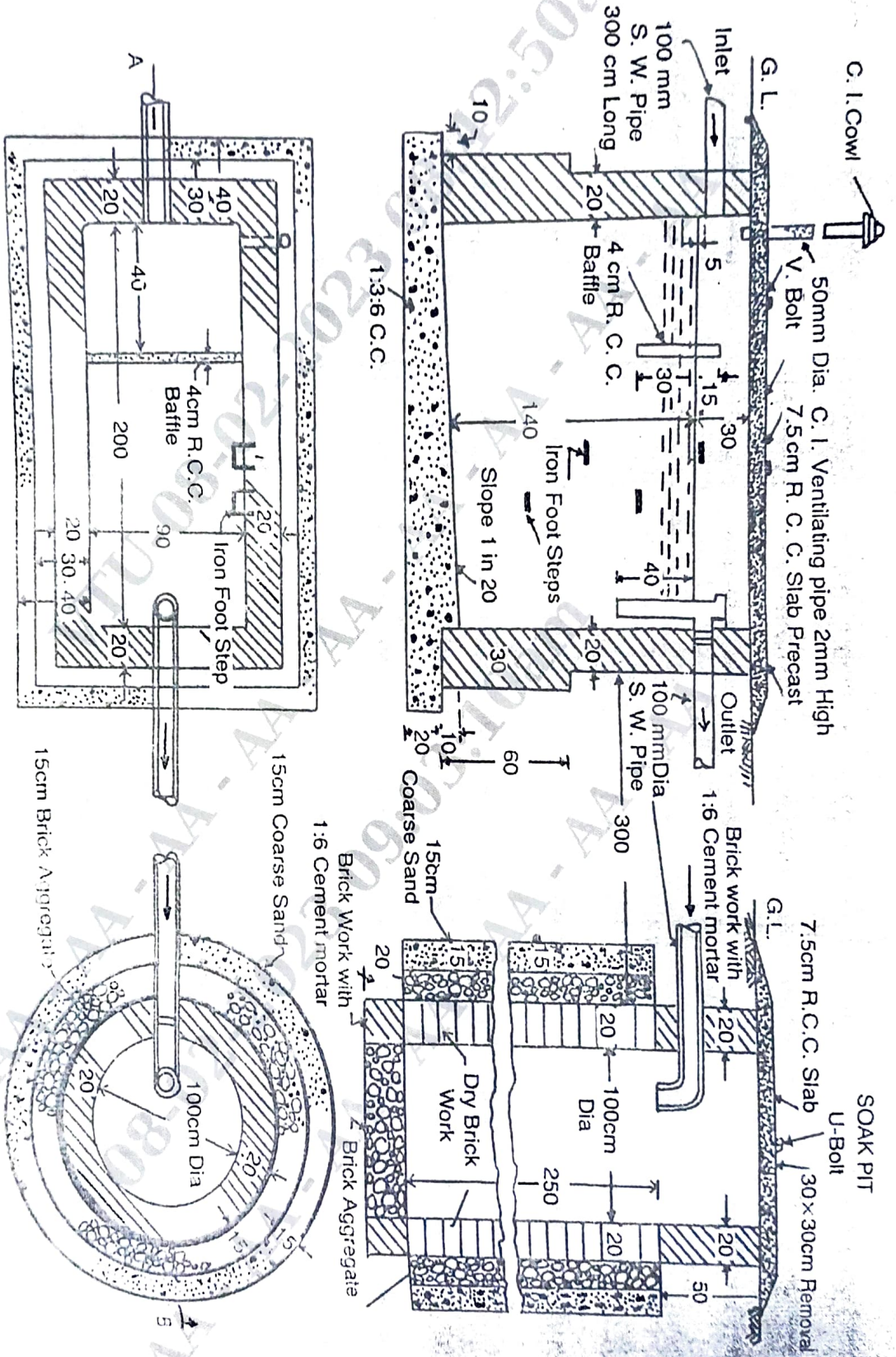   c. 12mm thick CM plastering for walls of septic tank.

   (20 Marks)

PLAN

FOUNDATION DETAILS FOR MAIN & PARTITION WALLS

Fig.Q7

C. I. Cowl

G. L.

Inlet

300 cm Long
S. W. Pipe
100 mm

50mm Dia. C. I. Ventilating pipe 2mm High

V. Bolt

7.5cm R. C. C. Slab Precast

20

5

4 cm R. C. C.
Baffle

15
30

140

Iron Foot Steps

Slope 1 in 20

40

1:3:6 C.C.

30

20

100 mm Dia
S. W. Pipe

Outlet

1:6 Cement mortar

Brick work with

300

G. L.

7.5cm R.C.C. Slab

SOAK PIT
U-Bolt

30×30cm Removal

20

100cm
Dia

250

20

50

Dry Brick
Work

20

15

15

Brick Work with
1:6 Cement mortar

15cm
Coarse Sand

15cm
Coarse Sand

Brick Aggregate

20
10
60

A

20
30
40

4Ō

4cm R.C.C.
Baffle

200

20

90

20
30
40

Iron Foot Step

20

20

15cm Brick Aggregate

100cm Dia

20

20

15

5

5

PLAN
All Dimensions in Centimetre unless otherwise Specified.