P P SAVANI UNIVERSITY

Sixth Semester of B. Tech. Examination

May 2022

SECV3090 Estimation & Costing

26.05.2022, Thursday **Time: 09:00 a.m. To 11:30 a.m.** **Maximum Marks: 60**

Instructions:

1. The question paper comprises of two sections.
2. Make suitable assumptions and draw neat figures wherever required.
3. Use of scientific calculator is allowed.

SECTION – I

Q - 1 (a) Define Estimate. Explain types of estimates. **[05]**

Q - 1 (b) A person constructs a building of plinth area equal to 150 Sq. m. on a plot land in a locality at cost of Rs. 1,50,500/-. The floor height of building is 3m. Calculate the cost of similar building of plinth area 180 Sq. m. to be constructed in the same locality by plinth area method. **[05]**

OR

Q - 1 (a) Calculate approximate cost of following data for a School: - **[05]**

(i) Number of Classroom = 10

(ii) Area of each class = 40 m^2

(iii) Area for other facility = 100 m^2

A similar building having same specification and having built up area of 700 m^2 constructed at Rs. 63 lakhs.

Q - 1 (b) Explain method of detailed estimate. **[05]**

Q - 2 (a) Explain classification of Specifications. **[05]**

Q - 2 (b) Draft a detailed specification for the Plastering. **[05]**

OR

Q - 2 (a) Explain principle of writing specification. **[05]**

Q - 2 (b) Draft a detailed specification for the RCC Construction. **[05]**

Q - 3 (a) Define: Rate Analysis. What is the necessity of Rate Analysis? **[05]**

Q - 3 (b) Prepare rate analysis for 25 M^3 brick masonry work in CM (1:4) (Material & Labor). **[05]**

Q - 3 (a) Which are the factors affecting the rate analysis? Explain **[05]**

Q - 3 (b) Prepare rate analysis for 35 M^3 RCC M20 Slab (Material & Labor). **[05]**

SECTION – II

Q-1 Answer the Following (Attempt any three)

I. What are the methods used for calculating quantities of different structures? Explain any two with example. **[10]**

II. **Fig. 1** shows the line diagram for a building with section of footings. Calculate the quantities for the following items... **[10]**

1. Excavation in ordinary soil.
2. PCC (1:4:8) for Foundation.
3. Brick Masonry up to plinth

Use center line method.

III. **Fig.2** show the plan of a row house. Calculate the quantities of following using long wall short wall method. **[10]**

1. Excavation in foundation.
2. PCC in foundation (1:4:8)
3. Brick work in foundation (up to GL.)
4. Earth filling in excavation trenches.

Adopt following details...

1. Plinth height = 0.45 m.
2. Riser = 15 cm & tread = 30 cm.
3. Chajja over kitchen door & window.
4. Wall = 30 cm. & parapet = 20 cm.

IV. **Fig.3** showing the detailing of R.C.C. beam. Calculate the quantities of following... **[10]**

1. R.C.C. work 1:2:4
2. Formwork for beam.
3. Total quantity of steel in KG.

Bar Bending Schedule.

V. **Fig.4** showing the detailing of R.C.C. Column Footing. Calculate the quantities of following... **[10]**

1. Excavation in foundation.
2. Filling in foundation trenches.
3. PCC in foundation (1:4:8)
4. R.C.C. work 1:2:4

****

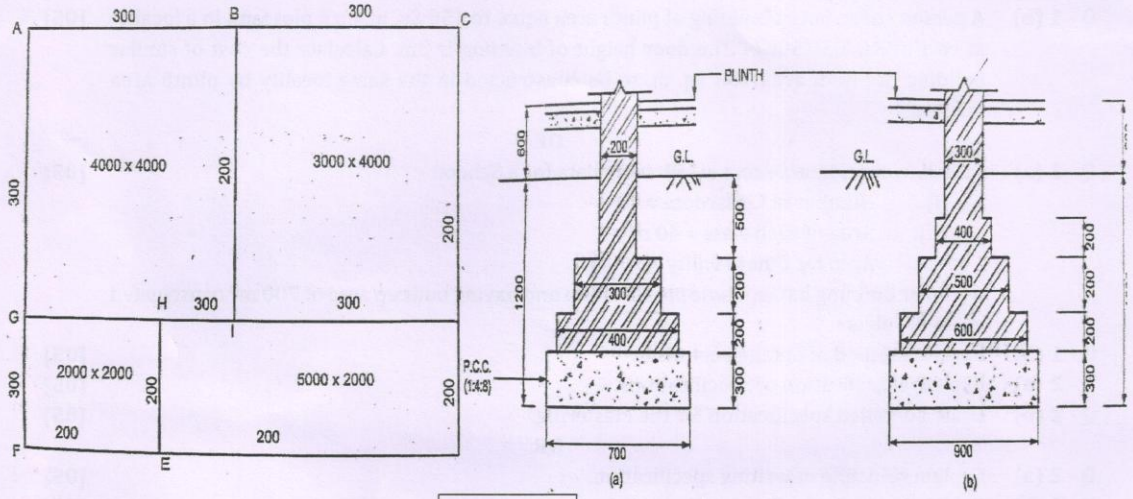
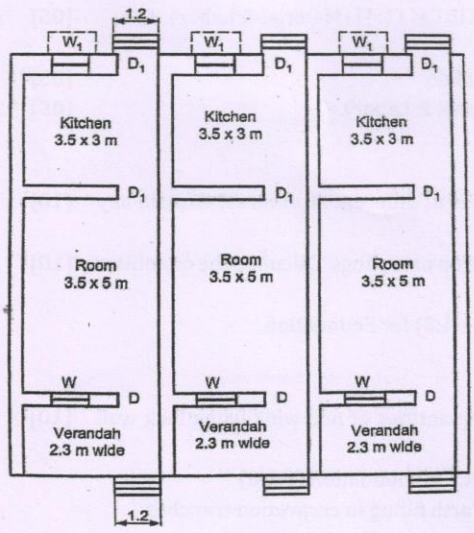


Fig. 1.



Description	Size	Size (m)
Door	D	1.2 X 2.1
Door	D_1	1.0 X 2.1
Window	W	1.2 X 1.2
Window	W_1	0.9 X 1.2

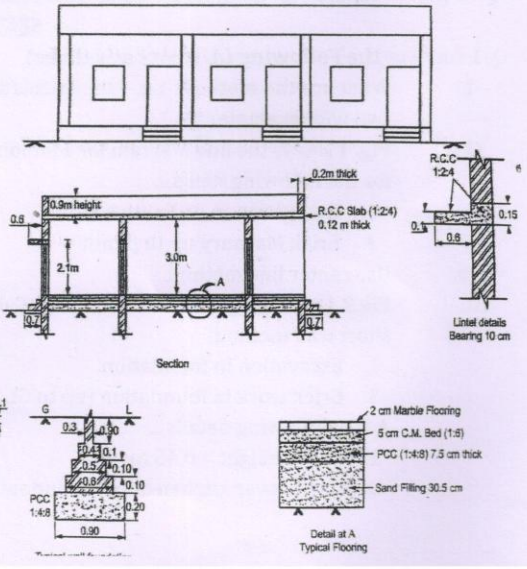


Fig. 2.

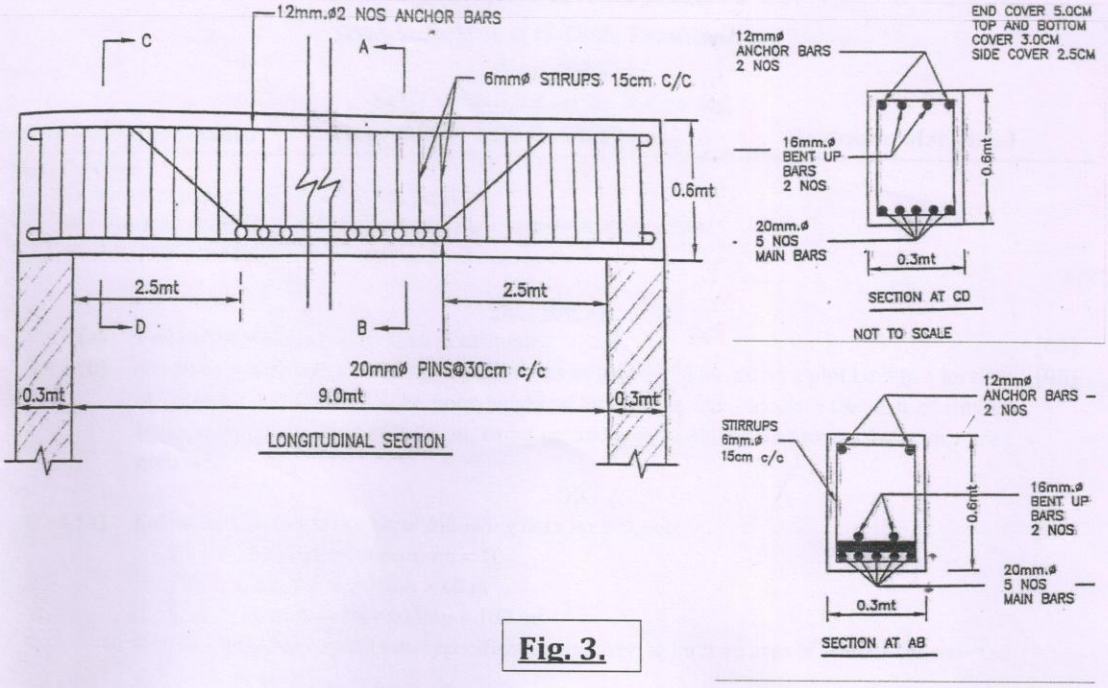

12mm.ø2 NOS ANCHOR BARS
C
A
6mmø STIRUPS 15cm C/C
0.6mt
2.5mt
2.5mt
D
B
20mmø PINS@30cm c/c
0.3mt
9.0mt
0.3mt
LONGITUDINAL SECTION
END COVER 5.0CM
TOP AND BOTTOM
COVER 3.0CM
SIDE COVER 2.5CM
12mmø
ANCHOR BARS
2 NOS
16mm.ø
BENT UP
BARS
2 NOS
20mm.ø
5 NOS
MAIN BARS
0.6mt
0.3mt
SECTION AT CD
NOT TO SCALE
12mmø
ANCHOR BARS
2 NOS
STIRRUPS
6mm.ø
15cm c/c
16mm.ø
BENT UP
BARS
2 NOS
0.6mt
20mm.ø
5 NOS
MAIN BARS
0.3mt
SECTION AT AB

Fig. 3.

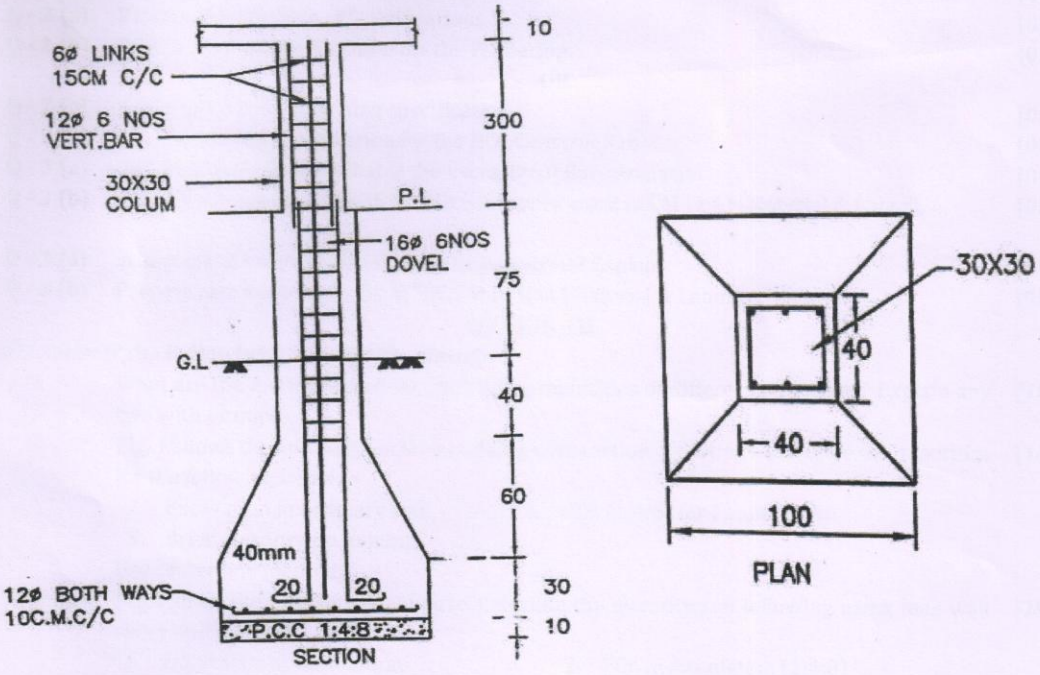

6ø LINKS
15CM C/C
12ø 6 NOS
VERT.BAR
30X30
COLUM
P.L
16ø 6NOS
DOVEL
G.L
40mm
12ø BOTH WAYS
10C.M.C/C
20
20
P.C.C 1:4:8
SECTION
10
300
75
40
60
30
10
30X30
40
40
100
PLAN

Fig. 4.