Total number of printed pages–8

53 (CE 701) ESCS

2019

ESTIMATION AND COSTING

Paper : CE 701

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1. *(a)* A person has purchased an old building at a cost of Rs. 1,00,000.00 on the basis of that the cost of land is Rs. 50,000 and cost of the structure Rs. 60,000. Consider the future life of the building be 25 years, workout the amount of annual sinking fund at 5% interest, when scrap value is 10% of the cost of the building. 5

(b) Define the methods of valuations. 5

(c) Write notes on : 2·5×2=5

(i) Schedule of bars

(ii) Contingencies.

Contd.

(d) Prepare a preliminary estimate of a 4-storeyed office building having a carpet area of 2000 *sqm* for the obtaining administrative approval of the Govt. given the following data. It may be assumed that 30% of built up area will be taken up by corridors, verandas, lavatories, staircases etc and 10% of the built up area will be occupied by walls. 5

(i) Plinth area rates = Rs. 950 per *sqm*

(ii) Extra due to deep foundation = 1% of building cost

(iii) Extra for special architectural treatment = 0·5% of building cost

(iv) Extra for water supply and sanitary installations = 6% of building cost

(v) Extra for electrical installation = 12·5% of building cost

(vi) Extra for other services = 5% of building cost

(vii) Contingencies = 2·5%

(viii) Supervision charges = 8%.

2. Estimate the cost of a masonary platform 6*m* × 5*m* from the given drawing and specifications — 20

General specifications :

(i) Foundation — Lime concrete

(ii) Masonary — 1st class brickwork in lime mortar

(iii) Floor — 2·5*cm* cement concrete over 7·5*cm* lime concrete, over wall 2·5*cm* cement concrete

(iv) Wall finishing — outside walls are 12*mm* cement plastered 1 : 6

Rates :

(i) Earthwork in excavation in foundation @ Rs. 350 per % *cum*

(ii) Earthwork in filling @ Rs. 275 per % *cum*

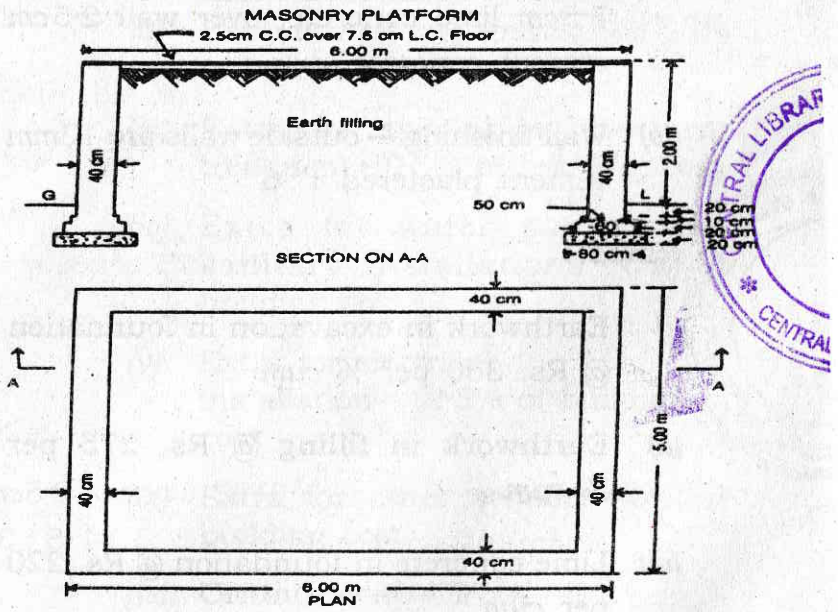
(iii) Lime concrete in foundation @ Rs. 220 per *cum*

(iv) 1st class brickwork in lime mortar @ Rs. 300 per *cum*

(v) 12*mm* cement sand plastering 1 : 6 @ Rs. 7 per *sqm*

(vi) 2·5*cm* cement concrete 1 : 2 : 4 floor over and including 7·5*cm* lime concrete @ Rs. 19 per *sqm*

(vii) 2·5*cm* cement concrete 1 : 2 : 4 floor @ Rs. 18 per *sqm.*



3. Prepare a detailed estimate for earthwork for a portion of a road from the following data : 20

Dist. in 'm'	:	0	100	200	300	400	500
RL of ground	:	114·5	114·75	115·25	115·20	116·10	116·85

RL of formation : 115 Upward gradient 1 in 200 upto 600*m*

←

Dist. in 'm'	:	600	700	800	900	1000	1100	1200
RL of ground	:	118	118·25	118·10	117·80	117·75	117·9	117·5

→ Downward gradient 1 in 400 →

Formation width of road is 10*m*, side slope 2 : 1 in banking and 1½ : 1 in cutting.

Rates —

Earthwork in banking @ Rs. 275 per % *cum*

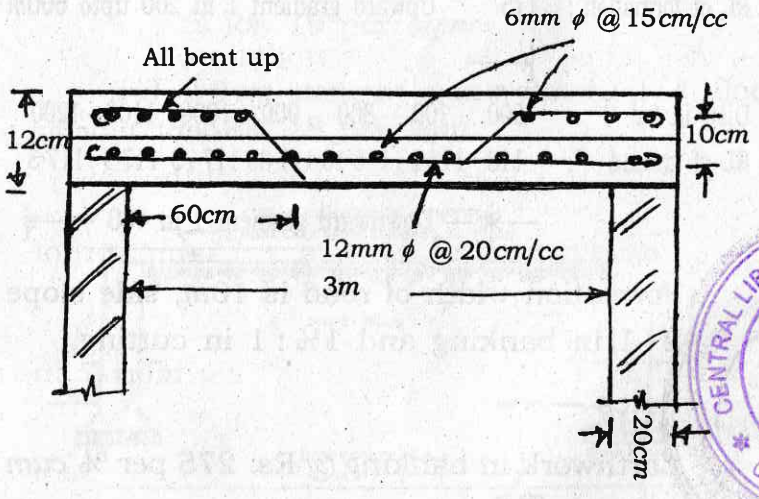
Earthwork in cutting @ Rs. 350 per % *cum*

4. 10×2=20

(a) Analyse the rate of RCC work of 2·5*cm* cement concrete floor 1 : 1·5 : 3, unit-1*sqm*, take 100*sqm.*

(b) Analyse the rate of RCC work in beam 1 : 2 : 4, unit-1 *cum*, take-10 *cum*.

5. Prepare a detail estimate of a RCC roof slab for a room of $3m \times 4m$. 20



Rate :

(i) RCC work 1 : 2 : 4 excluding steel @ Rs. 675 per *cum*

(ii) Steel bars including bending @ Rs. 515 per *q*.

6. Prepare a detailed estimate of the following items of a two roomed building from given plan and section by centre line method — 20

(i) Earthwork in excavation in foundation

(ii) Lime concrete in foundation

(iii) 1st class brickwork in cement mortar 1 : 6 in foundation and plinth

(iv) 2·5*cm* cement concrete damp proof course and

(v) 1st class brickwork in lime mortar in superstructure

Rates —

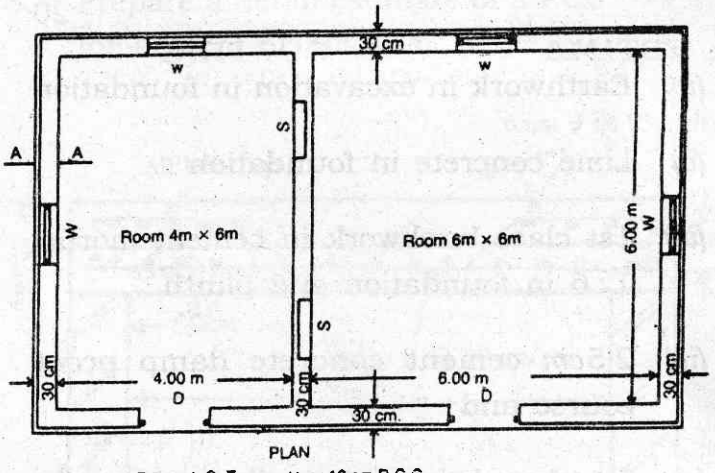
(i) Earthwork in excavation @ Rs. 450 per % *cum*

(ii) Lime concrete in foundation and plinth @ Rs. 250 per *cum*

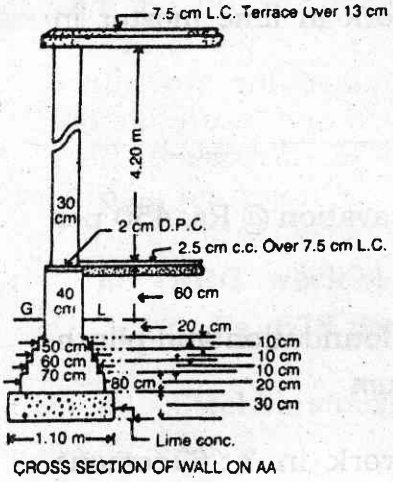
(iii) 1st class brickwork in 1 : 6 cement mortar @ Rs. 350 per *cum*

(iv) 2·5*cm* cement concrete damp proof course @ Rs. 12 per *sqm.*

TWO ROOMED BUILDING



PLAN



CROSS SECTION OF WALL ON AA

All Walls are of same section
Lintels over Doors, Windows and Shelves are 15 cm thick R.B.

Doors D-1.20 m × 2.10 m
Windows W-1.00 × 1.50 m
Shelves S-1.00 m × 1.50 m