53 (CE 701) ESCS

2016

ESTIMATION AND COSTING

Full Marks : 100

Time : Three hours

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

Answer ***any five*** *questions out of* ***Six.***

1. Estimate the quantity of earthwork for a portion of proposed road from the following data — 20

Distance: (*m*)	0	60	120	180	240	300	360	420	480	540
RL of GL :	73·12	72·44	71·86	72·08	71·03	70·8	70·54	70·82	70·96	71·5

RL of formation 72·42

← Downword gradient 0·8% → | ← upward gradient 0·5% →

Proposed formation width of road is 10*m*, side slope 1½ : 1 in cutting and 2 : 1 in banking. Assume there is no transverse, slope of the ground.

Consider a rate of Rs. 7 per *cum* for cutting and Rs. 6 per *cum* for banking.

Contd.

2. Prepare the detailed estimate of the building by centre line method from the following data — 20

* General specifications —

(i) Earthwork in excavation in foundation

(ii) Lime concrete in foundation

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

(iv) 2·5*cm* CC damp proof course.

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

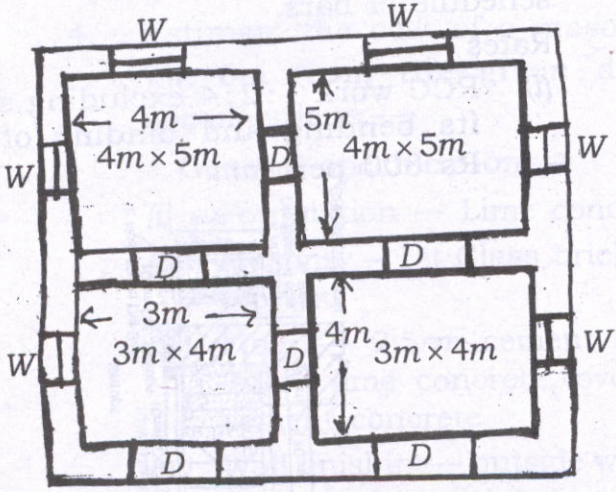
* Rates —

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

(ii) Lime concrete in foundation & plinth — Rs 250 per *cum*

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

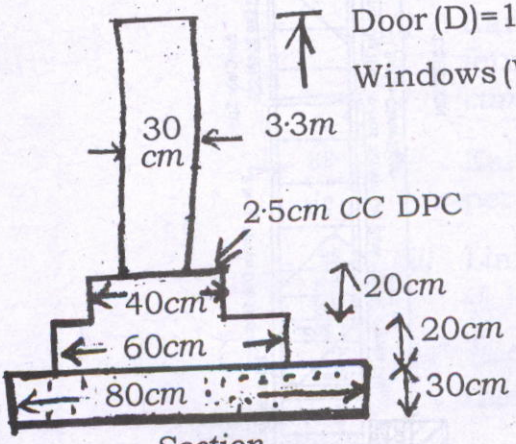
(iv) 2·5*cm* CC damp proof course-Rs 12 per *sq m*.



Plan

Door (D) = 1·2*m* × 2·1*m*

Windows (W) = 1*m* × 1·5*m*

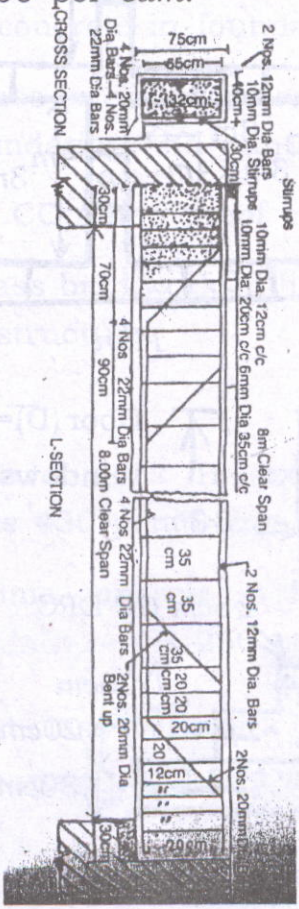


Section

3. Prepare a detailed estimate of a RCC beam of $8m$ clear span and $75cm \times 40\,cm$ in section from the given drawing. Also prepare the schedule of bars.

Rates — 20

(i) RCC work 1 : 2 : 4 excluding steel and its bending and binding of steel – Rs 800 per *cum*.



(ii) Steel bars including bending in RCC work—Rs 700 per quintal.

4. Estimate the cost of a masonry platform $7m \times 6m$ from the given drawing and specifications — 20

* General specifications—

(i) Foundation — Lime concrete

(ii) Masonry – 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.*

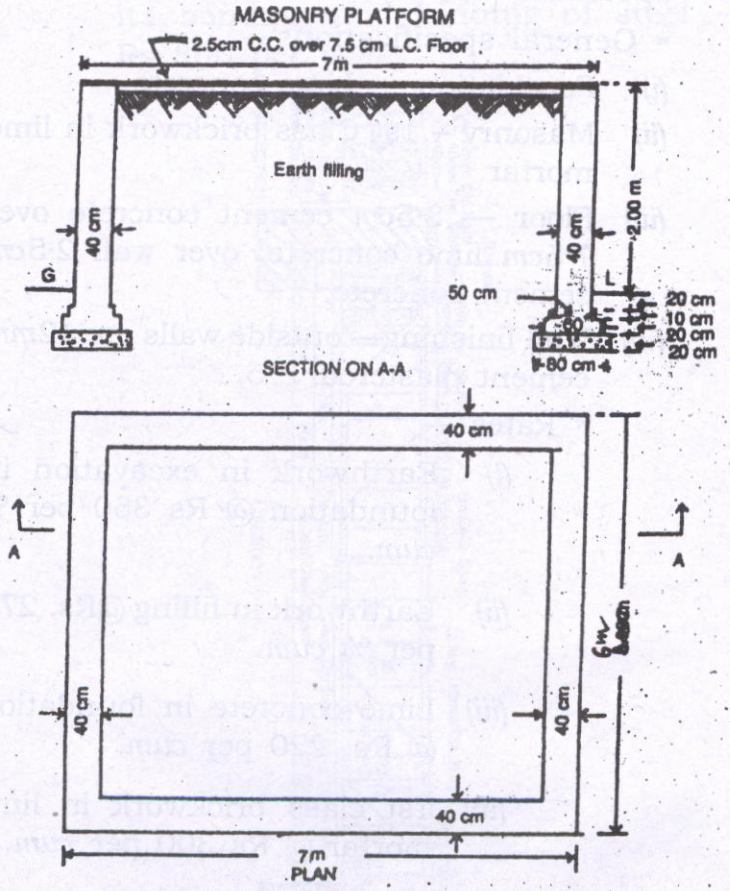
(ii) Earthwork in filling @Rs. 275 per % *cum.*

(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 *sq m.*

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



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

5. (i) Analyse the rate of 20*mm* plastering 1:6, unit 1*sq m*, take 100*sq m*. 10

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

6. (i) Define valuation ? What are the purposes of valuation ? 2+3=5

(ii) Write the definitions : 2½×4=10

(a) Outgoings

(b) Scrap value

(c) Salvage value

(d) Depreciation

(iii) Prepare an approximate estimate of a proposed building from the following –

Plinth area of the building =226 *sq m*

Cost of the structure = 2500 per *sq m.*

Water supply and sanitary arrangements = 12½ %.

Electrification = 7%

Beautification = 5%

Petty supervision charge = 3% 5