53 (CE 701) ESCS

2017

ESTIMATION AND COSTING

Full Marks : 100

Time : Three hours

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

*Answer **any five** questions.*

1. *(a)* Explain different types of estimate. Describe the procedure of preparing detailed estimate. 10

   (b) What is schedule of bars ? Calculate the total additional length for 45° as well as 30° cranked or bent up bar. 5

   (c) Explain the methods of calculating the earthwork, quantity. 5

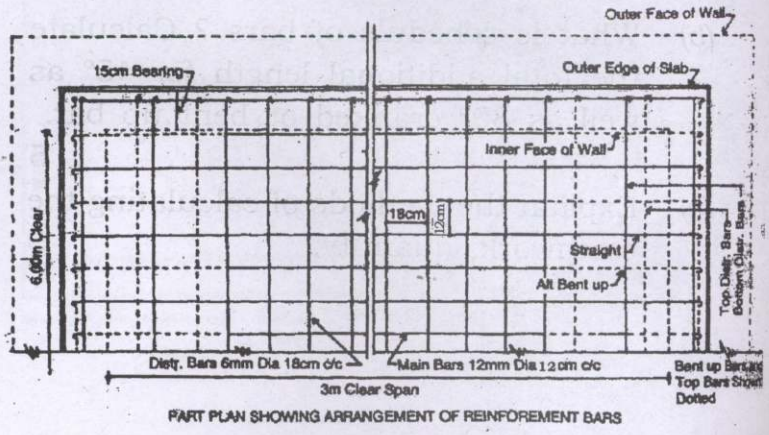
2. Prepare a detailed estimate of a R.C.C. roof slab of 3*m* clear span and 6*m* long from the given drawing R.C.C. work including centering and shuttering and steel reinforcement in detail shall be taken separately. 20

Also prepare a schedule of bars.

Rate :

(i) R.C.C. work 1:2:4 excluding steel and its bending but including centering and shuttering and bending of steel @ Rs. 675 per *cum.*

(ii) Steel bars including bending in R.C.C. work @ Rs 515 per quintal.



PART PLAN SHOWING ARRANGEMENT OF REINFOREMENT BARS

3. Reduced level of ground along the centre line of a proposed road from chainage 10 to chainage 20 are given below. The formation level at the 10th chainage is 107 and the road is in downward gradient of 1 in 150 upto the chainage 14 and then the gradient changes to 1 in 100 downward. Formation width of road is 10 metre and side slopes of banking are 2:1 (H:V).

Length of chain is 30 metre. 20

Draw longitudinal section of the road and a typical cross section and prepare an estimate of earth wrok at the rate of Rs. 275 per % cum.

Chainge :	10	11	12	13	14	15	16
R.L.of ground :	105	105·6	105·44	105·9	105·42	104·3	105
R.L.of formation :	107						

Gradient : ← downward gradient 1 in 150 ⟶ ← downward gradient 1 in 100

17	18	19	20
104·1	104·62	104	103·3

downward gradient 1 in 100 ⟶

4. *(a)* Analyse the rate of R.C.C. work in beam 1 : 2 : 4, unit 1*cum*, take 10*cum*. 10

(b) Analyse the rate of 2·5*m* cement concrete floor 1 : 1·5 : 3, unit 1*sqm*, Take 100 *sqm*. 10

5. *(a)* A leasehold property is to produce a net annual income of Rs. 12,000·00 for next 30 years. The owner expects a return of 8% on his capital and also sets apart a sinking fund instalment to accumulate at 6% annually to replace the capital. Determine the value of property. 10

(b) An owner has installed an air condition at a cost of Rs 4000. If the life of the air condition is 10 year, calculate the amount which he should set aside annually as sinking fund to accumulate the above cost at 5% compound interest. 10

6. Estimate the cost of a masonary platform $6m \times 5m$ from the given drawing and specification — 20

General specification —

(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) Earth work in filling @ Rs. 275 per % *cum*

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

(iv) Ist 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.*