53 (CE 701) ESCS

2019

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. Define the following terms— 2.5×8=20

   (i) Contingencies

   (ii) Work charged establishment

   (iii) Overhead cost

   (iv) Scrap value

   (v) Sinking fund

   (vi) Depreciation

   (vii) Salvage value

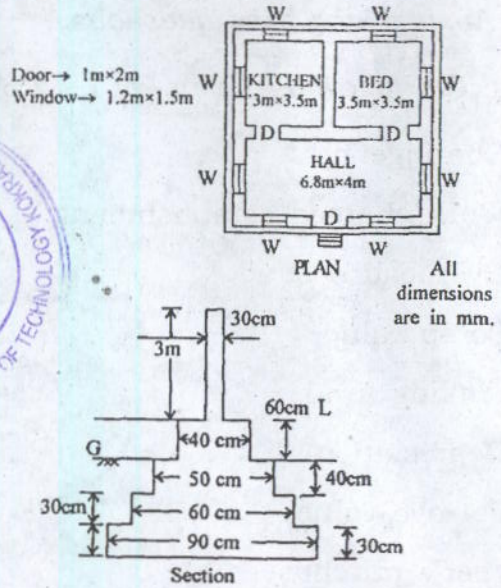
   (viii) Year's purchase.

2. A road project has the following data :

Chainge :	0	20	40	60	80	100	120
RL of ground :	20.6	21	21.5	22.1	22.7	22.9	23

The formation level at chainage 0 is 22 and having a raising gradient of 1 in 100 the top width is 12*m* and side slopes are 1½:1. Assuming the transverse direction is in level. Calculate the earthwork and its cost. Rate-Earthwork in banking @Rs.8 per *cum* and for cutting @ Rs. 7 per *cum*.. 20

3. Prepare a detail estimate from the specifications and figure below by centre line method 20



Specifications—

(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.

(v) 1st class brickwork in superstructure.

Rates—

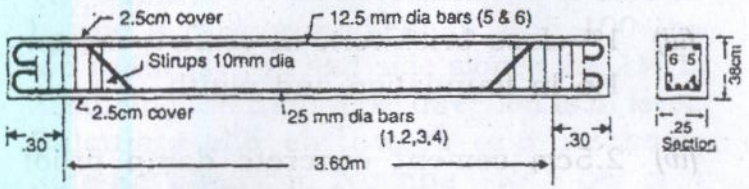
(i) Earthwork in excavation - Rs. 450 per % *cum*.

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

(iii) 1st class brickwork in cement mortar in 1:6 @ Rs. 350 per *cum* in foundation, plinth and superstructure.

(iv) 2.5*cm* cement concrete damp proof course–Rs. 20 per *sqm*.

4. Work out the quantity of cement concrete (1:2:4) and reinforcement in a beam as per section given in *figure*. Also prepare the schedule of bars – 20



Data–

Clear span = 3.6*m*

Bearing = 0.3*m* on either side.

Section of beam = 25*cm*×38*cm*

Reinforcement = 4 bars (main) 2.5*cm* dia.

Hanger bars = 2nos., 1.25*cm* dia

Stirrups = 10*mm* dia 2*cm c/c*

Rates—

(i) RCC work (1:2:4) excluding steel and its bending @ 675 per *cm*.

(ii) Steel bars including bending (mild steel) in RCC work @ 515 per *q*.

5. *(a)* Analyse the rate of concrete 1:5:10 in foundation with brick ballast 40*mm* thick gauge, unit 1*cum*, take – 10*cum*. 6

(b) Analyse the rate of cement concrete of 1:2:4 proportion in 1*cum* unit, take 10 *cum*. 7

(c) Analyse the rate of 2.5*cm* thick cement concrete 1:1.5:3 damp proof course unit-1 *sqm*, take-100 *sqm* 7

6. *(a)* Find the depreciation of a RCC building purchased for Rs. 15 lakhs and the salvage value being Rs. 1.5 lakh after 12 years. Calculate the depreciation for each year adopting straight line method. 10

(b) Write the detailed specification of lime concrete in foundation. 10