53 (CE 701) ESCS

2017

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

    Data —

    clear span = 3·6m

    Bearing = 0·3m on either side

    Section of the beam = 25cm × 38cm

    Reinforcement = 4 *bars* (main) 2·5cm dia
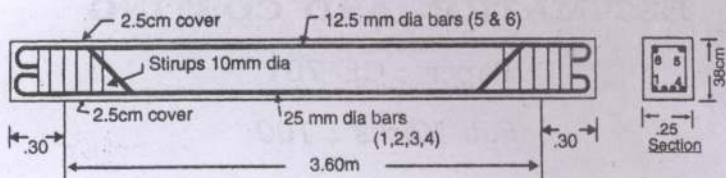
    Hanger bars = 2nos, 1·25cm dia

    Stirrups = 10mm dia 2cm c/c

    Rates =

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

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

2. Prepare an estimate of the earthwork of an approach road as per the data given. Formation width 10*m*. Side slopes are 1*V* and 2*H* in filling and cutting. **20**

Distance (*m*) : 0	30	60	90	120	150	180
RL of GL : 100·5	100	99·2	100·5	101	100·5	101
RL of FL : 101·0						

$\longleftarrow$ formation line 1 in 60 $\longrightarrow$
downward

Rates —

(i) Earthwork in cutting @ 250 per % *cum*

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

3. Prepare a detailed estimate of a masonry water tank from given drawing, specification and rates — 20

General Specification —

Foundation—lime concrete

Masonry—1st class brickwork in cement mortar 1 : 6

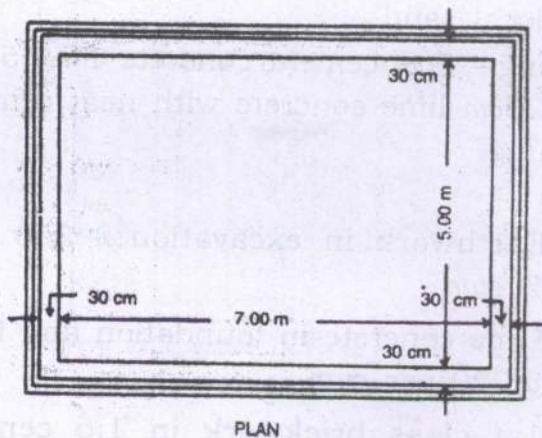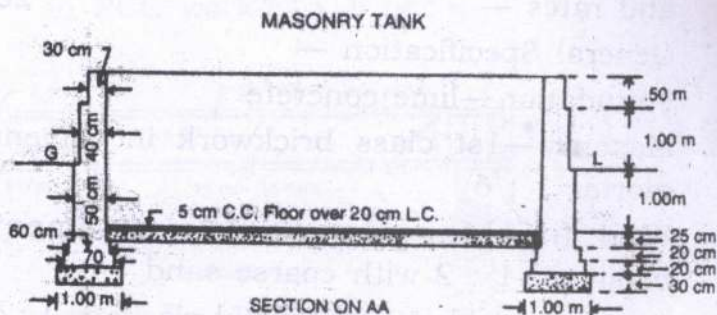Wall finishing—Inside 12 mm cement plastered 1 : 2 with coarse sand

Top and outside 12 mm cement plastered 1 : 4 with local sand

Flooring—5 cm cement concrete 1 : 1·5 : 3 over 20 cm lime concrete with neat cement finishing.

Rates —

(i) Earthwork in excavation @ 350 per % cum

(ii) Lime concrete in foundation and floor @ 220 per cum

(iii) 1st class brickwork in 1:6 cement mortar @ 320 per cum

(iv) 12 mm cement plaster 1 : 2 with coarse sand @ 8·50 per sqm

(v) 12 mm cement plaster 1:4 with local sand @ 8·30 per sqm

(vi) 5*cm* cement concrete 1:1·5:3 floor @ 55 per *sqm*.

MASONRY TANK

30 cm

.50 m

1.00 m

G   40 cm

L

1.00m

50 cm

5 cm C.C. Floor over 20 cm L.C.

60 cm

25 cm
20 cm
20 cm
30 cm

70

1.00 m

SECTION ON AA

1.00 m

30 cm

5.00 m

30 cm

30 cm

7.00 m

30 cm

30 cm

PLAN

4. *(a)* What do you mean by valuation ? What are the purpose of valuation ?

2+6=8

(b) Explain scrap value and salvage value.

2+2=4

(c) Describe sinking fund.

4

(d) An owner has installed an air cooler in a building at a cost of 8000·00. If the life of the air cooler is 18 years, calculate the amount which he should set aside annually as sinking fund to accumulate the above cost at 5% compound interest. 4

5. (a) Analyse the rate of —

RCC work in beam, slabs etc. $1:2:4$, unit 1 *cum*, take 10 *cum* 10

(b) Analyse the rate of —
$20mm$ cement plastering in $1:6$ with coarse sand, unit-1 *sqm*, take-100*sqm*.
5

(c) Analyse the rate of —
$2·5cm$ thick cement concrete $(1:1·5:3)$ damp proof course, unit-1 *sqm*, take-100 *sqm*.
5

6. Write the detailed specification of : *(any two)*
$2\times10=20$

(a) Cement concrete $1:2:4$

(b) Damp proof course

(c) Lime concrete in flooring.