22503

24225

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data, if necessary.

(5) Use of Non-programmable Electronic Pocket Calculator is permissible.

(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following : **10**

a) Define estimating and costing.

b) State purpose of estimating and costing.

c) State mode of measurement for following items of work as per I.S. 1200

i) Inspection chamber

ii) Ironwork in truss

iii) Timbering of trenches

iv) PCC in foundation.

d) State any four purpose of detailed estimate.

e) Enlist data required for detailed estimate.

f) State four factors which affects rate analysis.

g) List four relevant software's for preparing estimate.

P.T.O.

Marks

2. Attempt any THREE of the following : **12**

a) State the rules of deduction in plastering as per I.S. 1200.

b) Differentiate between revised and supplementary estimate.

c) Draw the standard format of face sheet and abstract sheet.

d) Prepare approximate estimate for a Government office building having -

i) Total No. of rooms = 14

ii) Area of each room = 60 Sq. M and

iii) Area of other facilities 150 Sq. M.

Similar office building with similar specifications and having built up area = 1100 Sq. M. was constructed at Rs. 3.55 Crores.

3. Attempt any THREE of the following : **12**

a) Prepare approximate estimate of bridge having 5 spans of 45 m each using following data:

i) Cost of existing bridge ₹ 1.25 Cr.

ii) Existing bridge having 4 spans of 50 m each.

b) Distinguish between Long Wall - Short Wall method and centre line method (any - four points of differences)

c) Describe the long wall and short wall method of estimating with suitable example.

d) For a RCC framed structure, there are six columns of size 230 × 300 mm and length of column 3.60 m each. Work out the total approximate quantity of steel required for all columns.

Marks

4. Attempt any THREE of the following : **12**

a) Calculate the quantity of following items shown in Fig. No. 1

i) excavation for foundation for structure

ii) UCR masonary in foundation

b) Calculate the quantity of following items shown in Fig. No. 1

i) BBM in CM 1:6

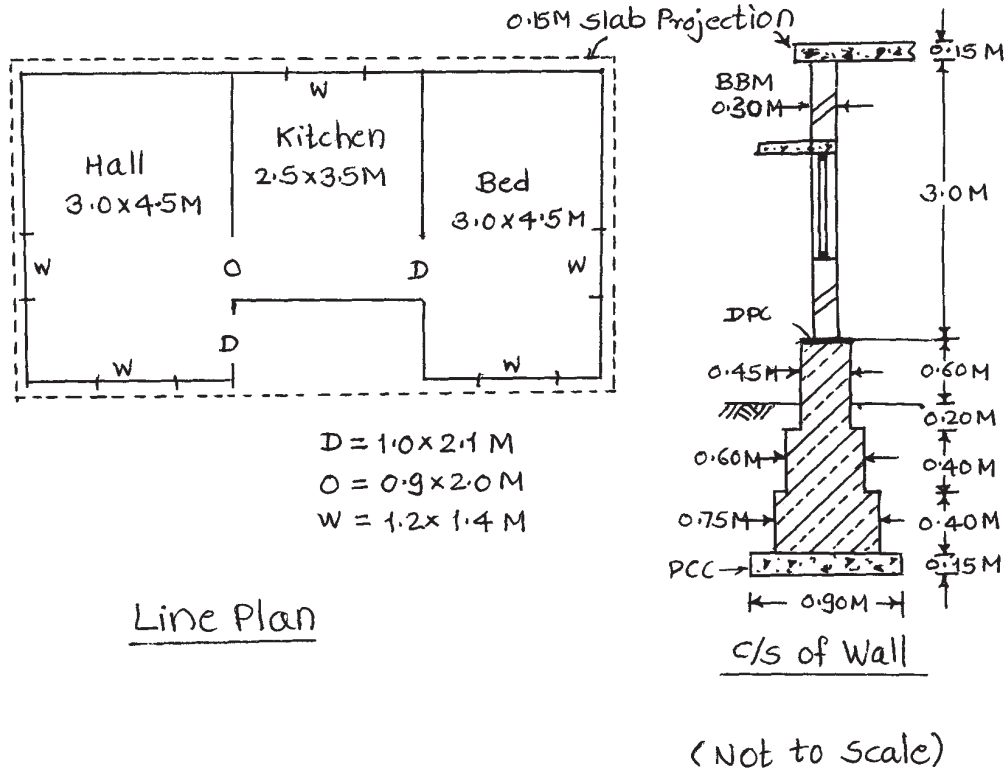

Fig. No. 1

c) A RCC simply supported beam of side 300 mm × 650 mm is reinforced with four, 20 mm diameters bars. The main bars are placed in one row and two are bent-up. Two anchor bars of 12 mm diameters are provided to top and 6 mm diameter stirrups are provided at 150 mmc/c. The span of beam in 5.6 m and end bearing is of 30 cm. Calculate total quantity of mild steel reinforcement. Also prepare schedule of bars.

d) Define rate analysis and state factors affecting rate analysis.

e) State four advantages of using softwares for estimating and costing.

Marks

5. Attempt any TWO of the following : **12**

a) Work out the quantity of plain steel for beam in following and prepare bar bending schedule

i) Overall length of beam = 4 m long

ii) Main Bars = Total 4 NOs of 12 mm dia out of which 2 bent up

iii) Size of Beam = 230 mm × 300 mm

iv) Anchor Bars = 2 NOs of 10 mm dia

v) Stirrups = 6 mm dia at 150 c/c

b) An RCC roof slab of overall size 6600 mm × 2200 mm and thickness 150 mm is provided with 12 mm diameters main bars bent up alternately and placed at 150 mmc/c the distribution steel of 6 mm diameters is provided of 200 mmc/c. The all round cover is 15 mm. Find out the total quantity of plain steel, Prepare bar bending schedule.

c) Prepare rate analysis for 60 m3 cement concrete of proportion (1:2:4)

6. Attempt any TWO of the following : **12**

a) Prepare rate analysis for 12 mm plaster in CM 1:4

b) Calculate the volume of earthwork for a proposed road having formation width 10 m and side slopes 2:1 using mid sectional area method. Assume formation level as 115.50 m with no longitudinal slope.

Chainage	400	420	440	460	480	500
G.L. (m)	111.50	111.60	111.85	111.45	111.20	110.90

Marks

c) Workout quantity of following items for septic tank of size 1.80 m × 5.40 m and height 2.0 m. Refer Fig. No. 2

i) Earthwork in Excavation

ii) P.C.C. (1:3:6)

iii) Slab on septic tank 75 mm thick.

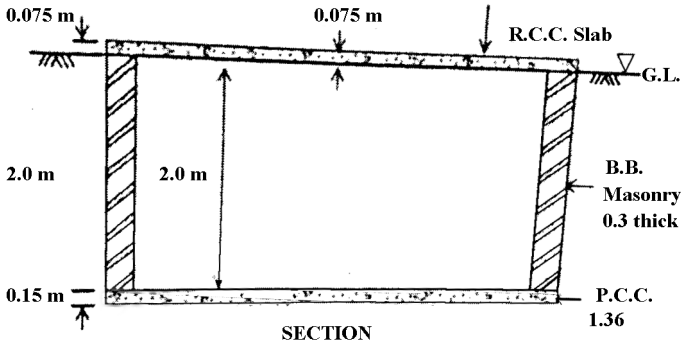

Fig. No. 2