17980

16117

4 Hours / 100 Marks Seat No. | | | | | | | | |

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

(2) Answer each next main Question on a new page.

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

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

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

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

Marks

1. Attempt any FIVE of the following: **20**

a) Enlist types of estimates and explain plinth area method.

b) State the sequence of execution of items of work for small load bearing structure.

c) State the purpose of publishing DSR by PWD. Give its necessity.

d) State mode of measurement for following items of work.

(i) Inspection chamber.

(ii) False ceiling.

(iii) Expansion joints in concrete.

(iv) Honey comb brickwork.

Marks

e) Enlist the data required for detailed estimate and write the necessity of each.

f) Define the term rate analysis. State the purpose of it.

g) Define the following Terms.

(i) Prime cost

(ii) Day work

(iii) Centage charges

(iv) Provisional sum

2. Attempt any TWO of the following: **16**

a) Prepare rate analysis for coursed rubble masonry in c.m. (1:6) in superstructure.

b) (i) A Hospital building of 175 beds is constructed in Hyderabad at the cost of construction of ₹ 57 lacs. Find the approximate estimate of a small hospital of 45 beds in the similar locality by using service unit method.

(ii) State the purpose of approximate estimate.

c) (i) State the rules of deduction for plastering work as per I.S. 1200.

(ii) Give the market rates for following materials.

(1) Cement bag

(2) Clay Burnt Bricks.

(3) Coarse aggregate (20-25 mm)

(4) hard murum.

Marks

3. Attempt any FOUR of the following: **16**

a) State any four advantages of using software in the preparation of estimates of civil engineering works.

b) Enlist any four softwares used for estimation and drawing in civil engineering.

c) Explain the terms:

(i) Overhead charges

(ii) Standard Lead

(iii) Lift in excavation

(iv) Work charged establishment.

d) State various costs included in detailed estimate with their percentage.

e) Explain long wall and short wall method with one example.

f) Calculate the quantity of concrete for a trapezoidal footing from the following data.

(i) Size of column - 230 × 450 mm

(ii) Size of Rectangular footing base - 800 × 1000 mm

(iii) Depth of Trapezoidal block - 250 mm

(iv) Depth of Rectangular block - 200 mm

(v) Total No. of footing - 06 No's.

4. a) Work out the quantities of any two of the following items by refering Fig. No. 1 and enter them in standard measurement sheet with brief description of items. **8**

(i) Excavation in foundation

(ii) UCR masonry in foundation and plinth

(iii) Mosaic tiles.

Marks

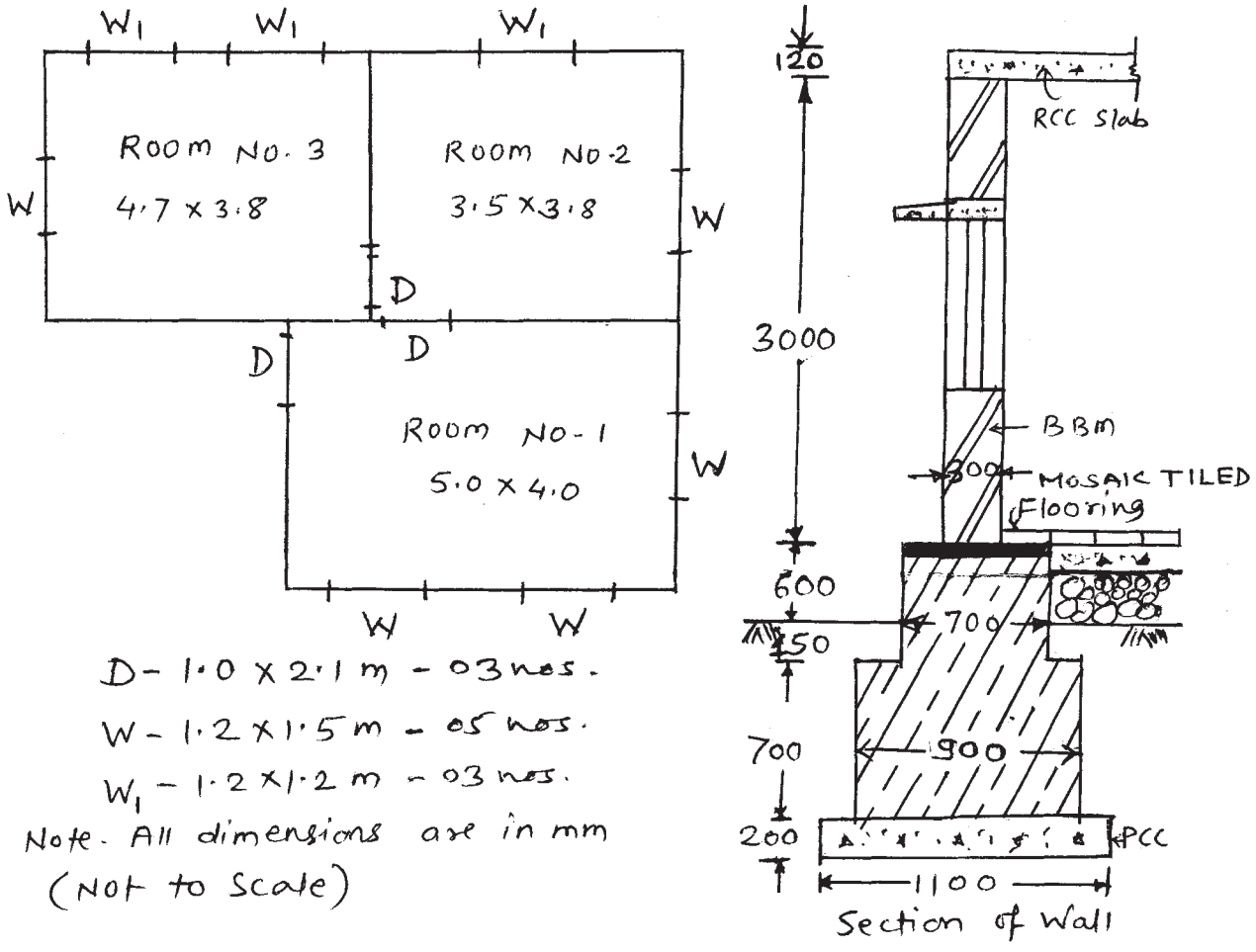

Fig. No. 1

b) **Attempt any <u>TWO</u> of the following:** **8**

(i) An R.C.C. simply supported beam of size 230 × 525 mm is reinforced with 4 No's of 16 mm diameter main bars. Main bars are placed in one row and two bent up. Two anchor bars of 12 mm diameter are provided at top. 8 mm diameter stirrups are provided at 150 mm c/c, The overall length of beam is 5 m. and cover to the reinforcement is 25 mm from all sides. Calculate the total quantity of steel required with bar bending schedule.

(ii) Work out the materials required for 40 m^3 brick masonry in c.m. 1:6. Take size of brick- 19 cm × 9 cm × 9 mm.

(iii) (1) State the necessity of provisional quantities and provisional sum.

(2) State the purpose of provision of contingencies in estimates.

Marks

5. Attempt any TWO of the following: **16**

a) Find the quantity of excavation, R.C.C. ring wall, and P.C.C. parapet and protection concrete in circular community well. (Refer Fig. No. 2)

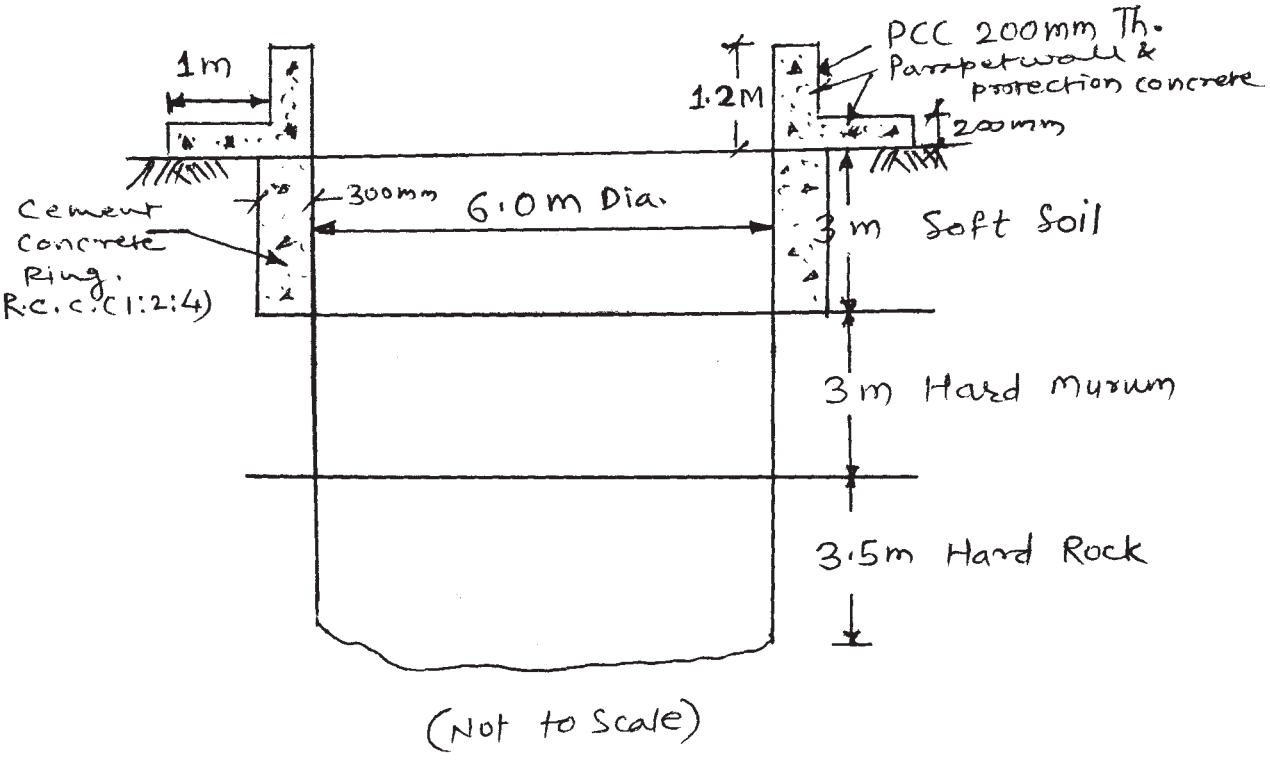

Fig. No. 2

b) Calculate the quantities of earthwork in cutting and in banking for a portion of a road with following data.

(i) Formation width of road is 15 m.

(ii) Formation Level of starting chainage is 151.40 m.

(iii) The road surface shall be given a falling gradient of 1 in 200.

(iv) Side slopes are 1V:2H in banking and 1V:1.5 H in cutting.

Chainage in m	0	30	60	90	120	150	180
G.L.in m	150.90	150.70	150.80	151.30	151.50	151.40	151.00

c) Prepare rate analysis for R.C.C. slab in C.C. (1:2:4) including steel reinforcement.

P.T.O.

Marks

d) Calculate the quantities of following items for septic tank having two equal compartments internal size 1.5 × 2.4 m each and depth 1.75 m.

(i) Excavation

(ii) P.C.C. 1:4:8 in bed

(iii) B.B. masonry 230 mm Thick.

(iv) R.C.C. slab 130 mm Thick

6. Attempt any FOUR of the following: **16**

a) Prepare rate analysis for cement plaster 12 mm thick in C.M. (1:4).

b) Calculate the quantity of earthwork required for canal from following data. Use Prismoidal formula.

(i) Top width. 2.0 m

(ii) R.L. of top of bank. 105.00

(iii) Side slopes 2:1 for one side and 2.5:1 for other side.

Chainage in (m)	30	50	90	120	150
G.L.in (m)	102.50	102.00	100.00	99.00	97.50

c) State significance of checklist while preparing detailed estimate.

d) Define task work. State the task work for mason for following items.

(i) B.B. masonry in superstructure.

(ii) 20 mm thick cement plaster in C.M. 1:6.

e) State the load carrying capacity of truck of 5 ton and 8 ton for the following material.

(i) Cement in bags.

(ii) Brick.

f) State three methods of calculation of earthwork for road. Explain any one method.