# 17501

**11718**

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

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

(2) Figures to the right indicate full marks.

(3) Assume suitable data, if necessary.

(4) Use of Non-Programmable Electronic Pocket Calculator is permissible.

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

**Marks**

**1.** a) **Attempt any THREE of the following:** **12**

(i) Define estimating and costing. Enlist any three purposes of estimating and costing.

(ii) Enlist types of approximate estimate and explain any one in brief.

(iii) Prepare an estimate for 3 span bridge of 40 m each, the cost of existing bridge is Rs. 40,000/- per meter.

(iv) State the rules of desired accuracy in taking measurement as per IS1200.

b) **Attempt any ONE of the following:** **6**

(i) State standard mode of measurement for following items:

1) Dado

2) D.P.C.

3) Half brickwork

4) Barbed wire fencing

5) Collapsible gate

6) Wash basin

(ii) Describe in brief rules of deduction for opening as per IS 1200 for brick work and plastering.

P.T.O.

**Marks**

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

a) Describe in brief procedure for preparing approximate estimate of water supply project.

b) Prepare approximate estimate for public building from given data:

(i) Plinth area = 2200 sqm

(ii) Plinth area rate = 3500/sqm

(iii) Electric installation charges = 8% of cost of building.

(iv) Water supply charges = 3% of cost of building

(v) Contingencies = 2% of overall cost of building

(vi) Engineer supervision charges = 4% of overall cost of building

c) (i) Describe in brief long wall short wall method for taking out quantities.

(ii) Describe in brief prismoidal method for finding out earthwork quantities.

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

a) Draw standard format of measurement sheet and abstract sheet.

b) Explain in brief centage charges.

c) Define:

(i) Prime cost

(ii) Provisional sum

d) Enlist any four software used for estimation in Civil Engineering.

e) Describe in brief factors affecting on task work.

**Marks**

**4.** a) Workout quantities of any three items of work for Figure No. 1 **12**

(i) Earthwork in excavation

(ii) U.C.R. masonary in foundation

(iii) D.P.C.

(iv) Internal plaster

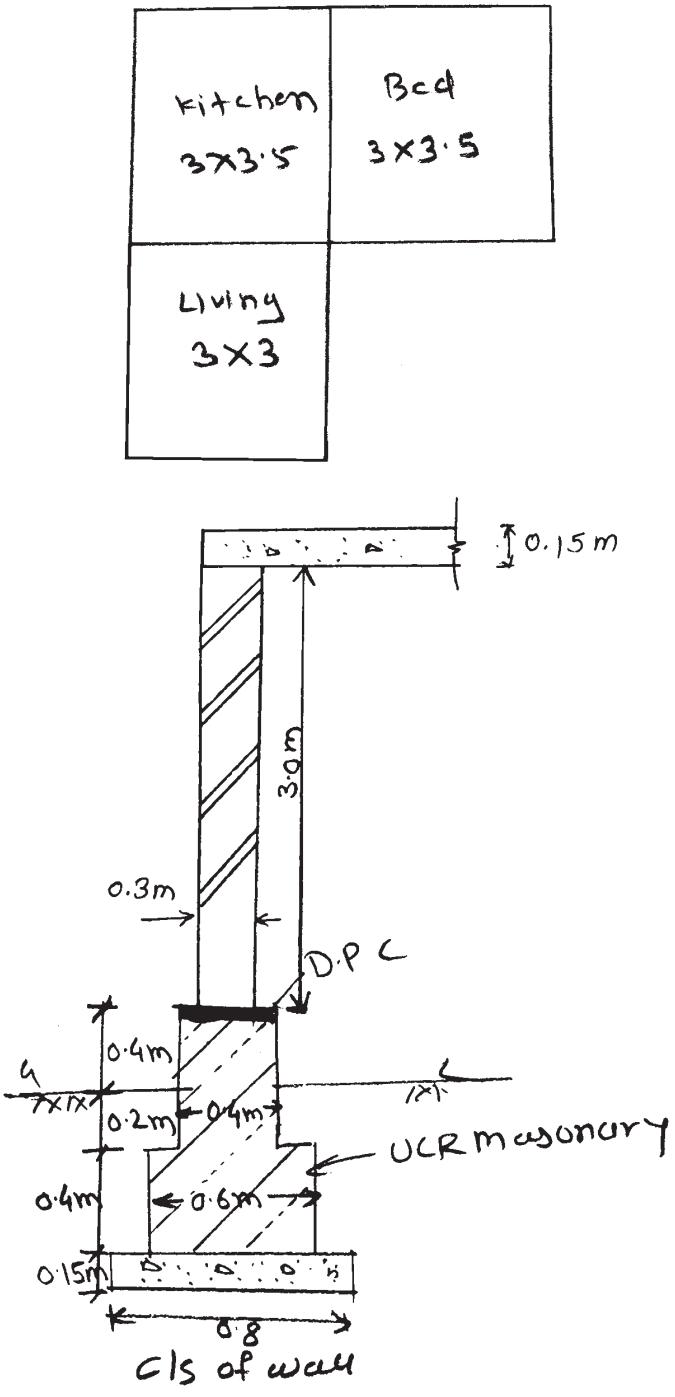


**Fig. No. 1**

P.T.O.

**Marks**

b) **Attempt any <u>ONE</u> of the following:** **6**

(i) Workout quantities of steel from given data:

1) Size of beam = 230 × 450 mm

2) Beam reinforcement = 2 Nos - 10 mm diameter at top
4 Nos - 16 mm diameter at bottom

3) Stirrupus of 6mm dia provided at 150 mm c/c

4) Length of beam = 4.2 m

(ii) Workout quantities of cement, sand and bricks required for 40 $m^3$ brick masonary in cement mortar 1 : 6

**5. Attempt any <u>TWO</u> of the following:** **16**

a) Calculate the quantity of earth work by mean area method from given data:

(i) Formation level of starting chainage = 51.30

(ii) Formation width of road = 10 m

(iii) Downward gradient of 1 in 200.

(iv) Side slope 2 : 1 for cutting and banking

| Chainage (m) | 120 | 160 | 200 | 240 | 280 |
|---|---|---|---|---|---|
| Ground level (m) | 50.85 | 50.65 | 50.75 | 51.25 | 51.45 |

b) Prepare rate analysis for 12 mm thick cement plaster in cm (1:4) in superstructure.

c) Prepare rate analysis for UCR masonary in cm (1:6) in superstructure.

**Marks**

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

a) (i) State importance of rate analysis.

(ii) State factors affecting rate analysis.

b) Calculate quantities of following items for septic tank size 2.5 × 6.5 m and height 2 m:

(i) Excavation

(ii) Brick masonary

(iii) P.C.C. in bed (15 cm thick)

(iv) Slab on top (12 cm thick)

Assume wall thickness as 0.2 m. 15 cm offset is provided for P.C.C. on all sides of septic tank.

c) Find quantity of excavation and concrete for circular community well. Refer Figure No. 2

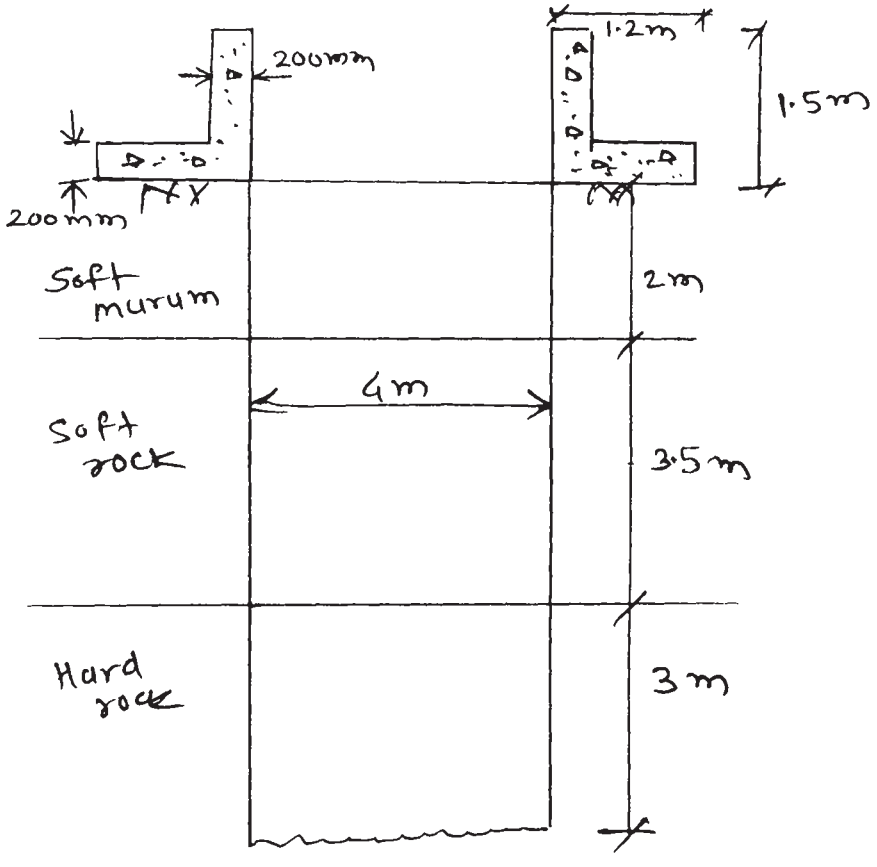


**Fig. No. 2**