314313

24225

4 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 :

i) Scrap value

ii) Salvage value

b) Define : Task work

c) State data required for preparation of detailed estimate.

d) State the mode of measurements for following items :-

i) Excavation

ii) Plastering

iii) Site clearance

iv) Steel reinforcement

P.T.O.

Marks

e) Define Rate analysis.

f) Draw the standard format of Abstract sheet.

g) State the percentage of steel for following :-

i) RCC footing

ii) RCC Slab

iii) RCC Beam

iv) RCC Chajja

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

a) State factors affecting task work.

b) State the different types of approximate estimate. Explain Typical bay method in detail, with example.

c) Define the terms with their percentage :-

i) Contingencies

ii) Work charged establishment

d) State the desired accuracy in taking measurement of various items of civil engineering work.

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

a) Explain PWD method for taking out quantities of items.

b) Prepare approximate estimate of a building using following data :

i) Built up area of building 135 sq.m.

ii) Similar type of structure is constructed with built up area 105 sq.m. and cost of building is ₹ 9,95,000/- in near by area last year.

iii) 10% increase in rate is observed in last 12 months.

c) Explain the data required for preparing a detailed estimate.

d) State the method to prepare approximate estimate for Roads / Highways, Canal, with an example.

Marks

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

a) Calculate the quantities of following items of works by entering the same in standard format of measurement sheet. Refer Fig. No. 1 (a) and (b).

i) Excavation for foundation

ii) U.C.R. masonary in CM 1:6 in foundation and Plinth.

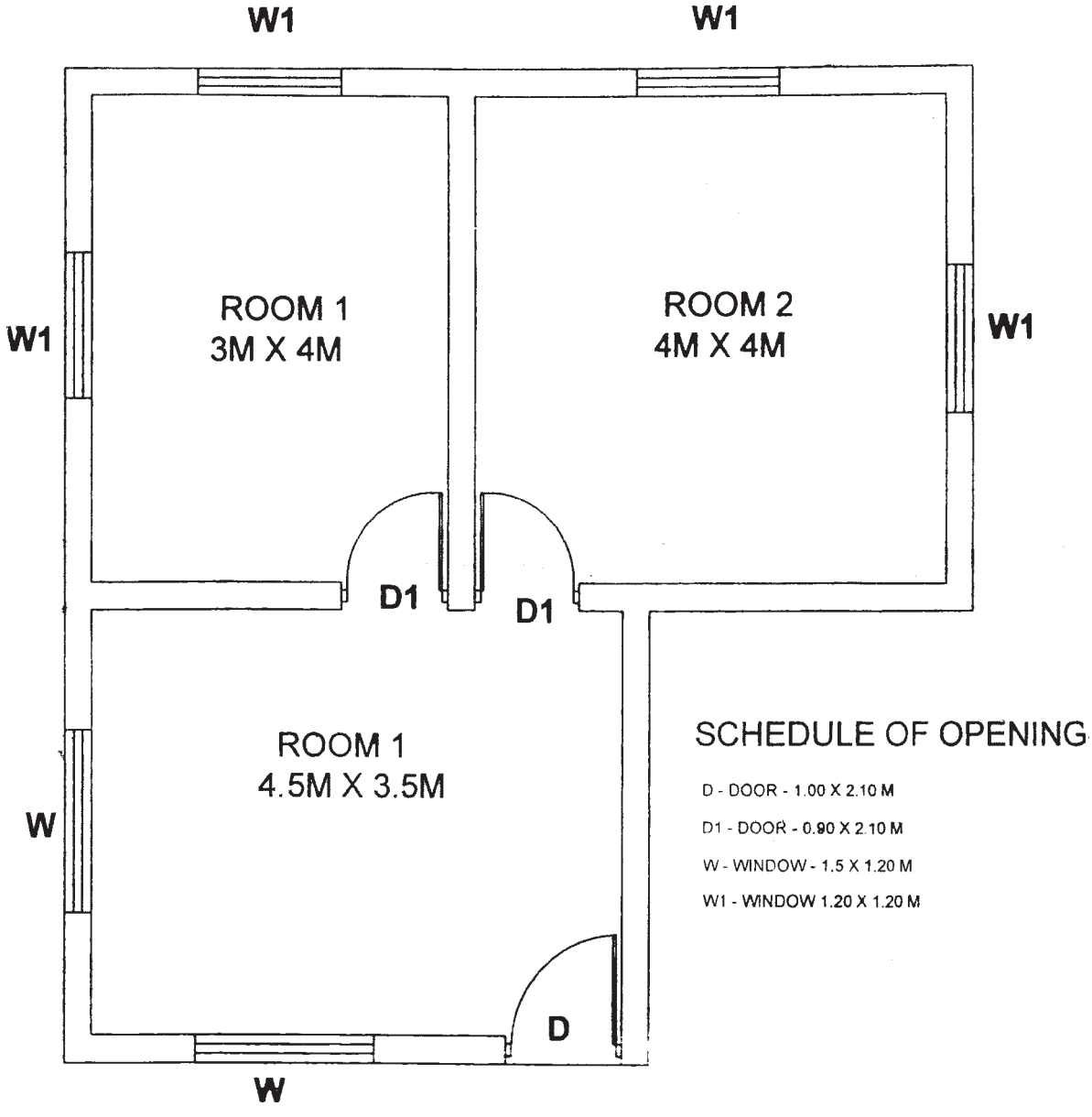

Fig. No. 1(a)

Marks

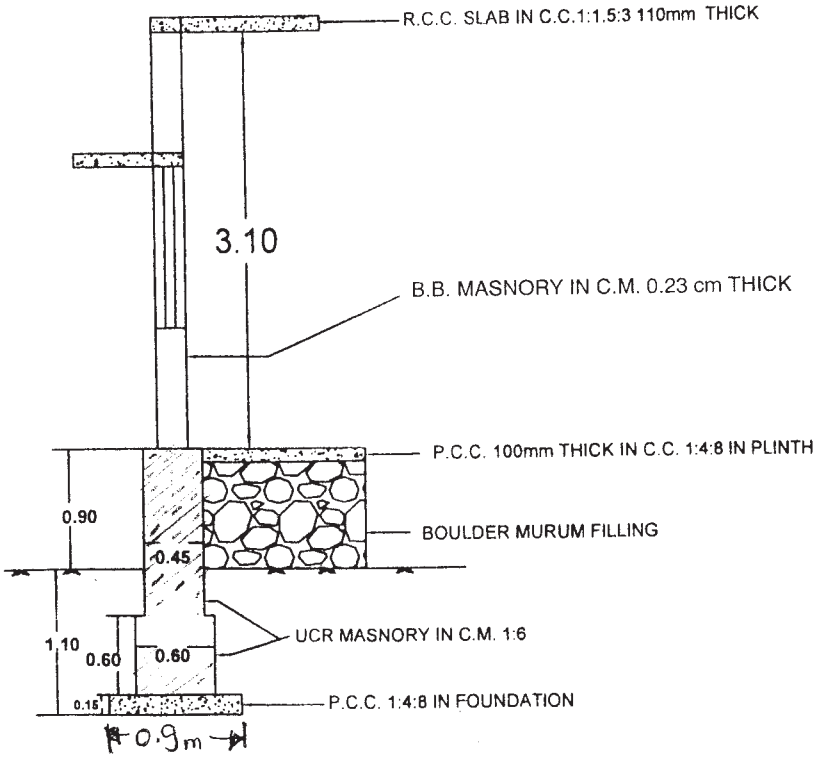

Fig. No. 1(b)

b) Calculate the quantity of 12 mm thick cement plaster in CM 1:4 from Fig. No. 1(a) and (b)

c) A simply supported RCC beam of side 300 mm × 650 mm is reinforced with 4, 20 mm diameters bars. The main bars are placed in one row and two are bent-up. Two anchor bars of 12 mm ϕ are provided to top and 6 mm ϕ stirrups are provided at 140 c/c. The span of beam is 5.6 m and end bearing is of 30 cm. Calculate total quantity of mild steel reinforcement. Also prepare bar bending schedule.

d) State the various methods of calculating depreciation. Explain straight line method in brief.

e) Explain Prismoidal method for finding out earthwork for road.

Marks

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

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

b) A building is newly constructed at the cost of ₹ 1,50,000/- on a plot of 600 sq.m. Fix monthly rent of this property from following data :-

i) Life of building 60 years.

ii) Rate of Land ₹ 80/sq.m.

iii) Return expected on cost of land and building 8%.

iv) Rate of interest for sinking fund 3%

v) Scrap value 10% of construction cost.

vi) Other outgoings 30% of gross rent.

c) A RCC slab (1:2:4) is to be provided on a room having internal dimensions 4.0 m × 5.0 m. Wall thickness is 30 cm, slab projection is 20 cm on all sides. Assume % of steel as 1%. Find the quantity of steel of slab in kg.

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

a) Calculate the capital value of a property from following data :

i) Rent inclusive of all taxes – ₹ 400/- per month.

ii) Outgoings 20% of gross rent.

iii) Net Yield expected from property 6%.

b) Calculate the quantity of materials required for 30 cu.m RCC work including steel reinforcement in cc M_{20}.

Marks

c) Calculate the quantities of earthwork in hearting and casing for earthen dam section given in Fig. No. 2. Use the data from table given below.

Chainage	30.00 M	60.00 M
Ground level	116 M	114.50 M

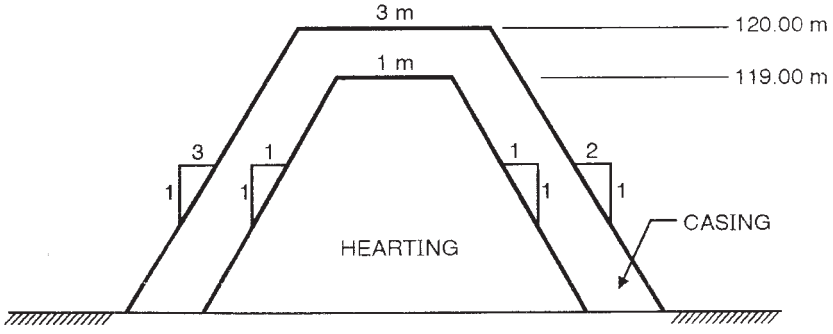

Fig. No. 2