



17501

21415

4 Hours/100 Marks

Seat No.

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- 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

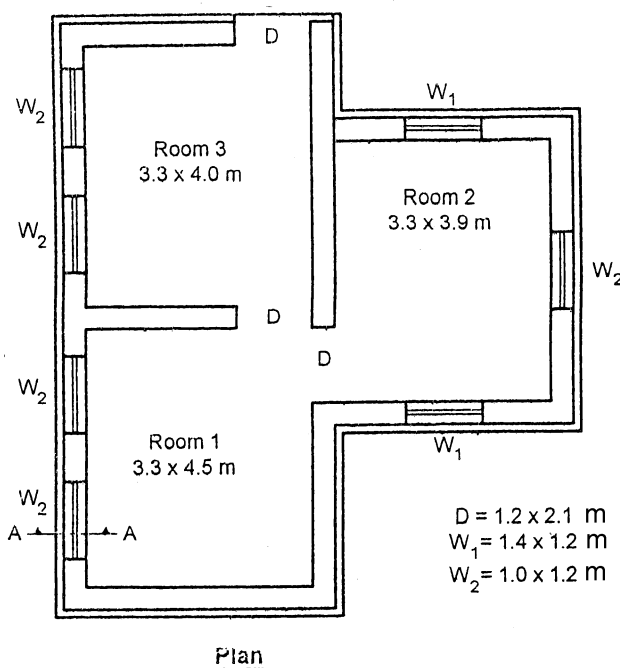
1. A) Attempt **any three** of the following : 12
- a) State the meaning of the term estimating and costing.
 - b) State any four purpose of estimating and costing.
 - c) Explain plinth area rate method of approximate estimate.
 - d) What is revised and supplementary estimate ?
- B) Attempt **any one** of the following : 6
- a) State the mode of measurements for following items of work.
 - i) Honey combed brickwork
 - ii) Collapsible gate (steel)
 - iii) Form work
 - iv) Brickwork (10 cm thick) in partition wall
 - v) Dado
 - vi) Wood work for door frame.
 - b) State the rules of deduction for openings as per IS-1200 for brickwork and plastering.
2. Attempt **any two** of the following : 16
- a) Draw the standard formats of measurement sheet, abstract sheet and face sheet.
 - b) Prepare approximate estimate of a public building having plinth area equal to 1800 sq.m.
 - i) Plinth area rate as Rs. 3,500/sq.m.
 - ii) Special architectural treatment = 3% of cost of building.

P.T.O.



- iii) Water supply and sanitary installation = 5% of cost of building.
 - iv) Electric installation = 14% of cost of building.
 - v) Other services = 5% of cost of building.
 - vi) Contingencies = 3% of overall cost of building.
 - vii) Supervision charges = 8% of overall cost of building.
- c) i) State the data required for preparing detailed estimate.
 ii) State the steps in preparation of detailed estimate.
3. A) Work out quantities of following **any three** items of work and enter the same in standard format of measurement sheet with brief description of item.
 Refer Fig. No. 1.

12



* All dimensions are in meter

FIG. NO. 1

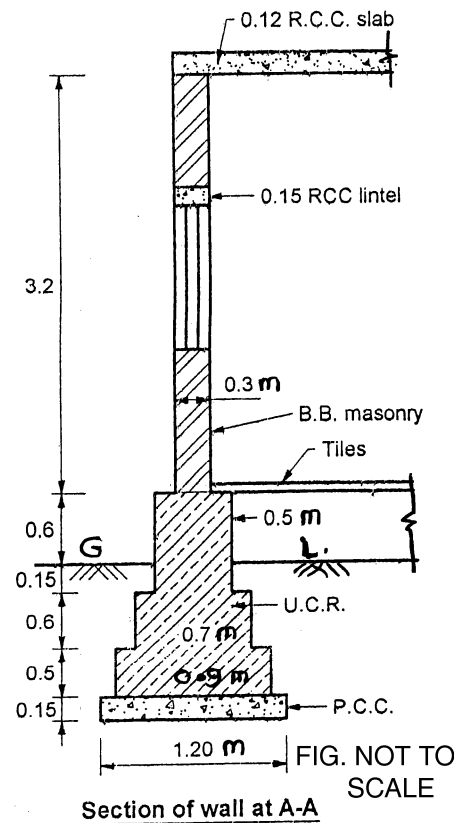


FIG. NOT TO SCALE

- i) Excavation for foundation.
- ii) U.C.R. masonry in foundation and plinth in c.m. (1 : 6)
- iii) B.B. Masonry in superstructure in c.m. (1 : 6).
- iv) Mosaic tile flooring.



B) Attempt **any one** of the following :

4

- a) Explain centre line method of calculating quantities of work.
- b) Enlist the various items of work for construction of a R.C.C. slab culvert.

4. Attempt **any three** of the following :

18

- a) An R.C.C. roof slab of overall size 6500 mm × 3000 mm and thickness 150 mm is provided with 12 mm diameter main bars bent up alternatively along shorter span and placed at 150 mm c/c. The distribution steel of 6 mm diameters along longer span is provided at 200 mm c/c. The all round cover is 15 mm. Find out total quantity of steel. Prepare bar bending schedule.
- b) Calculate the quantities of earth-work in cutting and in banking for a portion of road with following data :
 - i) Formation width of road is 12 m.
 - ii) Formation level of starting chainage is 51.50 m
 - iii) The road surface shall be given a falling gradient of 1 in 200
 - iv) Side slope are 1V : 2H in banking and 1V : 1.5H in cutting.

Chainage in m.	0	30	60	90	120	150	180
G.L. in m.	50.80	50.60	50.70	51.20	51.40	51.30	51.0

Use mid sectional area method.

- c) Prepare rate analysis for 12 mm thick. Cement plaster in c.m. (1 : 4) in superstructure.
- d) Define rate analysis and state the factors affecting rate analysis.

5. Attempt **any two** of the following :

16

- a) Explain the terms :
 - i) Lead
 - ii) Lift
 - iii) Task work
 - iv) Work charge establishment.
- b) Prepare rate analysis for brickwork in superstructure in c.m. 1 : 6 for 10 cu.m.
- c) A RCC beam 230 × 300 mm and length 3000 mm is reinforced with 3 no. of 12 mm ϕ main bar placed in one row out of 3, 2 bars are straight and one bar is bent up respectively. In addition to this 2 anchor bars of 10 mm dia. are provided at top. 6 mm ϕ stirrups are provided at 150 mm c/c. The overall cover provided to beam is 20 mm. Calculate total quantity of reinforcement (steel).

6. Attempt any two of the following :

a) Work out the quantity of following items for septic tank Refer Figure No. 3.

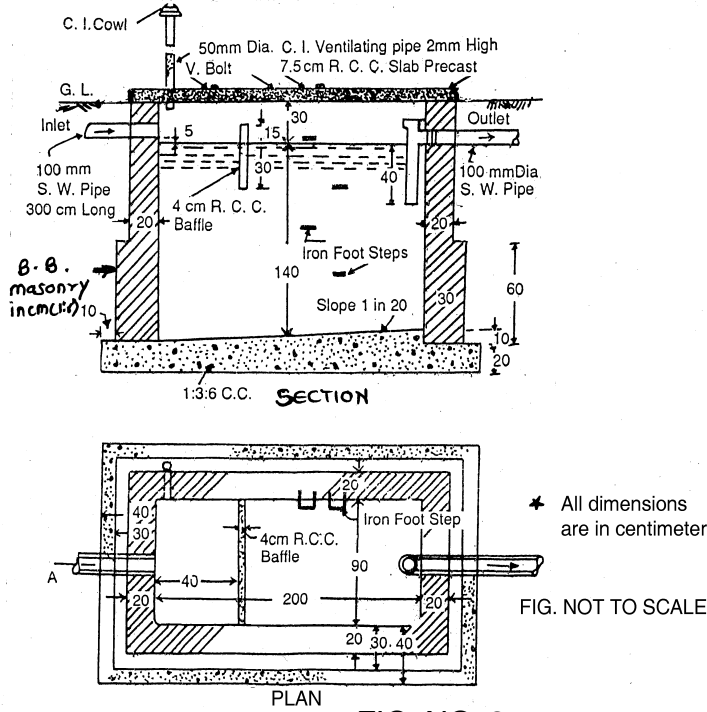


FIG. NO. 3

- i) Earth work in excavation
 - ii) P.C.C. (1 : 3 : 6)
 - iii) B. B. masonry in c.m. (1 : 6)
 - iv) Slab on septic tank 75 mm Thk.
- b) Prepare rate analysis for P.C.C. of grade M15.
- c) Calculate the quantity of excavation and UCR masonry work and enter in standard measurement sheet with brief description of item of work for community well as shown in Fig. No. 2.

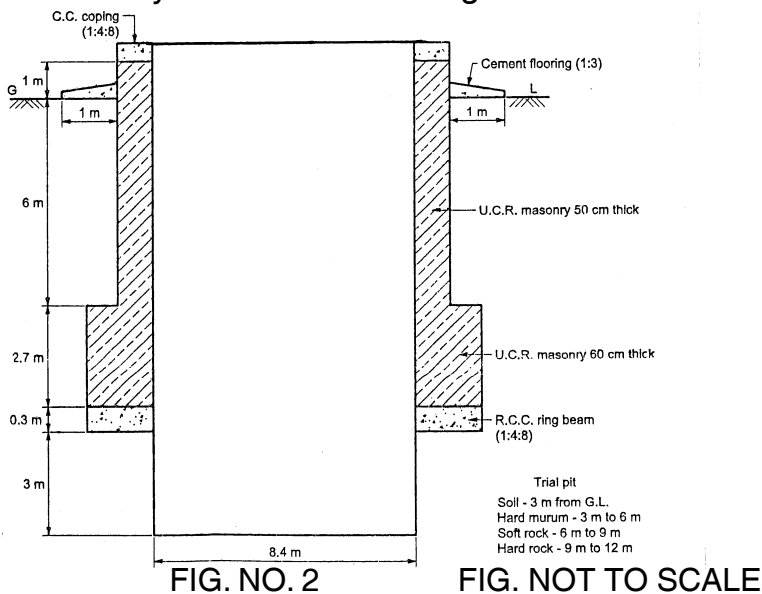


FIG. NO. 2

FIG. NOT TO SCALE