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.

Marks

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

(a)   What is estimating & costing and state two purpose of estimating & costing.

(b)   State the local rate of following materials :

Murrum, Traditional Bricks, Cement, Rubble

(c)   State the units of measurement for following item of work :

Flooring, concrete, basin & plastering.

(d)   List different types of detailed estimate.

(B)   **Attempt any TWO of the following :**   **08**

(a)   What is bar bending schedule ? State any two advantages of preparing bar bending schedule.

(b)   State Rules of Deduction as per IS 1200 for

(i)   Brickwork for walls.

(ii)   Painting work (Internal)

(c)   State situation under the following estimates prepared :

(i)   Revised estimate

(ii)   Approximate estimate

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

   (a) Describe the procedure for preparation of approximate estimate of an irrigation project.

   (b) Describe the procedure for preparing approximate estimate of road project.

   (c) Prepare approximate estimate of a bridge having 5 spans of 40 m each using following data :

   (i) Cost of existing bridge ₹ 1.2 cr.

   (ii) Existing bridge having 3 span of 50 m each.

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

   (a) Prepare check-list of R.C.C. framed structure for preparing a detailed estimate.

   (b) What is prime cost & pay work ?

   (c) A R.C.C. Lintel size 250×150 mm & clear span of 1.5 m is reinforced with 4 bars of 10 mm ϕ @ bottom & 3 bars of 8 mm ϕ @ top. The stirrups of 6 mm ϕ are provided 150 mm c/c. Bearing of lintel is 150 mm. Calculate the total quantity of steel reinforcement.

   (d) Explain the long wall & short wall method for taking out quantities.

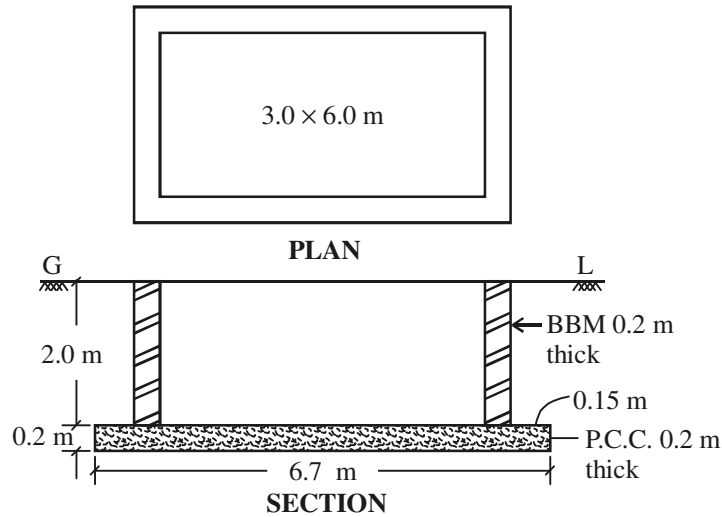   (e) What is work charged establishment & contingencies ?

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

   (a) State and explain four factors affecting rate of an item.

   (b) Prepare rate analysis for U.C-R masonry in C.M. (1:5) for foundation.

   (c) Prepare rate analysis for B.B. masonary in C.M. (1:6) 300 mm thick wall.

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

(a) Find quantity of brickwork, P.C.C., excavation and internal plaster for a underground water tank. (Fig. 1)
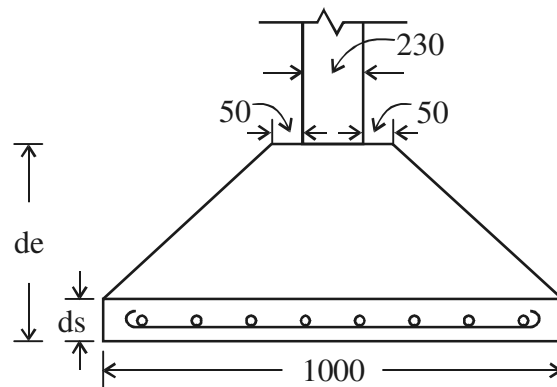

All dimensions are in metre.

Fig. 1

(b) Work out the quantity of following items for septic tank having internal size 1.5 m × 3.5 m and height 1.50 m. The top of slab of septic tank is 20 cm above ground level.

(i) Earthwork in excavation.

(ii) P.C.C. (M15) 15 cm thick

(iii) B.B. masonry in C.M. (1:6) 300 mm thick.

(iv) R.C.C. slab M20 on septic tank 12 mm thick

15 cm offset is provided for P.C.C. on all sides of septic tank.

(c) Work out the quantity of concrete and steel in footing for RCC column given in (see fig.-2) using following data.

All dimensions are in mm.

Fig. – 2

Column	No.	Column Size	Footing size	de/ds	Footing reinforcenent
C_2	07	230×300	1000×1200	350/150	$10\phi@150$ c/c both way

Assume suitable cover to the reinforcement.

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

(a) Prepare rate analysis for mosaic tile flooring 20 mm thick.

(b) Explain the factors to be considered in preparation of detailed estimate.

(c) What are the different methods used for calculation of earthwork quantities for road & canal ? Explain any one.

(d) What is task work ? State any three factors affecting task work.

(e) Explain the procedure for preparation of detailed estimate for a small R.C.C. slab culvert.

(f) Describe the procedure for preparing rate analysis.

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