VASAVI COLLEGE OF ENGINEERING (*Autonomous*), HYDERABAD

B.E. (Civil Engg.) IV Year I-Semester Main Examinations, December-2017

Estimation & Specifications

Time: **3** hours   Max. Marks: **70**

Note: Answer ALL questions in Part-A and any FIVE from Part-B

Part-A (10 × 2 = 20 Marks)

1. What are the basic requirements for estimating?

2. State the units in which DPC and Skirting of a floor measured.

3. What is Bar Bending Schedule?

4. Write the unit weights of steel reinforcement of diameters 6mm, 16mm.

5. Estimate the quantity of cement and aggregates in PCC (1:3:6) for 10cu.m.

6. Expand CPWD, SOR, SSR, PCC.

7. Explain the use of Earnest Money.

8. Distinguish between Drawing and Specification.

9. Distinguish BOT and BOOT.

10. Outline the requirements needed for Project Delivery process.

Part-B (5 × 10 = 50 Marks)

11. a) An irrigation canal has the following details. Bed width = 6 m, top width of left   [7]
    bank = 3.3m, top width of right bank = 3.5m, side slopes in cutting 1 : 1 and side slopes
    of both the banks is 1.5:1. Height of banks from bed 2.55m, longitudinal slope of the
    bed 1 in 4000. There was no transverse slope of the bed and ground. Ground levels at 6
    consecutive stations which are at 50m intervals are as follows.

Station	1	2	3	4	5	6
R.L. of ground, m	100	100.3	100.5	100.6	99.7	99.2

    Bed level at station 1 is 98.5m. Compute the earthwork in cutting and filling.

    b) What methods can be used to estimate the earth work volume in road and canal   [3]
    construction?

12. a) Find out the steel required for the RCC roof slab of 4.5 m clear span, 10 m long and   [7]
    180 mm thick, having 12 mm diameter main reinforcement bars at 15 cm center
    to center and 8 mm diameter distribution reinforcement bars at 20 mm center to center
    with alternate bent up bars. Draw the sketch showing details of reinforcement of slab.
    Also prepare schedule of bars of RCC slab. Consider clear cover is 15mm at bottom and
    25mm on all other sides.

    b) How to find the length of the steel for 45^0 and 30^0 bent up bar?   [3]

13. Workout the Rate Analysis for:
   a) Prepare a Lead Statement for the data given as   [6]

| S.No | Material | Rate at Source | Lead in Km | | | Conveyance Charges |
			Metal Track	Cartze Track	Sandy Track	
1.	Coarse Aggregate	₹ 300.00/- per cu.m	-	5	7	₹ 15.00/- per Km/m3
2.	Fine Aggregate	₹ 600.00/- per cu.m	3	2	5	₹ 10.00/- per Km/m3
3.	Bricks	₹ 4600 for 1000 Nos.	4	1	-	₹ 180.00/- per 1000 No./Km
4.	Cement	₹ 350.00/- per bag of 50Kg	5	2	1	₹ 12.00/- per 4Km/bag

   b) Using the above Lead Statement, Calculate the Cost of Cement Concrete of 1:2:4 mix   [4]
      required for 1.5 Cu.m of RCC Work used in Slab and Beam.

14. a) Distinguish between the general specifications and detailed specifications   [4]

    b) What are the different types of Estimates? Explain any four in detail.   [6]

15. a) Write the Comparisons of Project delivery methods?   [5]

    b) Explain PPP project with a case study.   [5]

16. a) List the different methods available to estimate quantities of different items of a building?   [5]
       Explain them.

    b) Estimate the steel requirement for RCC Beam of clear length of 4m, 300mm wide by   [5]
       450mm depth. It consists of 2#12mm diameter bars at top, and 2#16mm diameter and
       1#12mm diameter bars at the bottom. Diameter of stirrup is 8mm spaced at 180mm
       center to center. Clear cover to reinforcement provided is 40mm.
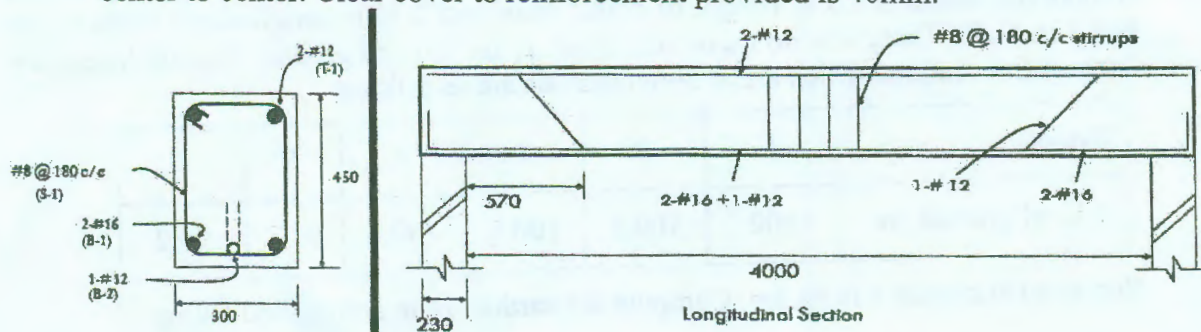
All dimensions are in mm

17. Answer any *two* of the following:
    a) Find out the rate for brick work in foundation and plinth with cement mortar 1:4. Cost   [5]
       of Brick Rs.4.50/-, Sand 1200/- per Cu.m, Cement Rs.350/- per bag. The labour
       requirement per Cu.m is Head Mason ½ no, Masons 8 nos. and Mazdoors 15 nos.
       and the corresponding rates are Rs.450/-, Rs.400/-, Rs.350/- respectively.

    b) Write the specifications for D.P.C.   [5]

    c) Infer the fundamental aspects of Project Delivery methods.   [5]

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