



c09-c-407

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BOARD DIPLOMA EXAMINATION, (C-09)
MARCH/APRIL—2016
DCE—FOURTH SEMESTER EXAMINATION
CIVIL ENGINEERING DRAWING—II

Time : 3 hours]

[Total Marks : 60

PART—A

4×5=20

Instructions : (1) Answer **all** questions.

(2) Each question carries **four** marks.

(3) Part—A may be drawn not to scale.

(4) Assume suitable data if missing.

1. Draw the plan of abutment, wing wall and return wall of RCC slab culvert from the given data :

Width of CC bed for abutment, wing wall and return wall = 1800 mm

Length of abutment = 7·0 m

Width of abutment, wing wall and return wall at bottom = 1·2 m

Width of abutment, wing wall and return wall at top = 0·6 m having better on earth side

Splayed wing walls are provided at a splay 1 : 1 outer face of return is at distance of 3·0 m from either end of abutment

Length of return as measured on outer face = 2·1 m

2. Draw the sectional elevation of two-span (each 3·5 m) RCC T-beam bridge and label the components.

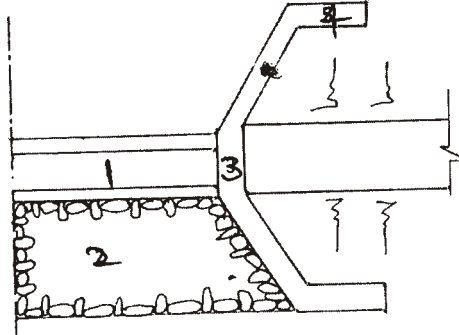
3. Draw the plan of a septic tank from the given specifications :

Internal dimensions of the tank = 3·50 m × 1·20 m × 1·30 m

Brick masonry wall thickness = 230 mm

CC offset for masonry walls = 300 mm

4. Half plan at top of a surplus weir is shown below in the figure. Name the parts numbered 1 to 4 :



5. Draw the section across the tower head of tank sluice with the following specifications :

Internal diameter = 1.20 m

Top level of RCC slab over well = +61.65

Thickness of RCC slab = 175 mm

Thickness of well steining = 450 mm from top to a level of +59.90 and 600 mm thick for the remaining height

Opening = 450 mm dia. opening is provided in the CC diaphragm 75 mm thick for allowing water into barrel

Shutter = Wooden shutter 600 mm wide 1250 mm depth and 50 mm thick is provided for regulating water

Foundation of well = 3.0 m dia. 600 mm thick CC foundation at level of +57.30

PART—B

25+15=40

Instructions : (1) Answer **all** questions.

(2) Assume any data missing.

(3) This part need to be drawn in given scale.

6. Draw the longitudinal section of a pipe culvert with the following data with a scale of 1:50 : 25

Bed level of the drain = + 50.350

Side slope of the drain = 1:1

General GL near the drain = + 51.550

Bed pitching on both U/S and D/S = 200 mm rough stone bed pitching to a length of 1200 mm shall be provided. A toe of same width 200 mm shall be taken to a level of + 50.00 at end of bed pitching.

* Side slope revetment on both U/S and D/S = 200 mm rough stone along the slop to a length of 1400 mm from BL to general GL

Internal diameter of CC pipe = 1.0 m

Thickness of pipe = 0.1 m

No. of pipe = 1

Bedding for the pipe = 250 mm CC

Bottom level of CC bedding = +50.00

At the end of pipe two head walls are provided with brick masonry

Bottom level of head wall = +49.00

Bottom width of head wall = 1200 mm

Top level of CC bed provided under head wall = +49.00

Bottom level of CC bed provided under head wall = +48.00

Width of CC bed = 1800 mm

Profile of head wall = outer surface vertical and earth fill face having a batter

So that the top width = 450 mm

Top level of head wall = +52.00

Formation width = 10000 mm

Side slope 2 H to 1 V

Embankment formation level = +54.00, Height of earth fill = 2.55 m

Guide stones on both sides of formation 450 mm × 450 mm square are provided at distance of 450 mm from extreme edge of formation. These stones are taken to a depth of 600 mm below formation level and extend to height 700 mm above formation level.

* **7.** Draw the longitudinal section of 'canal drop' to a scale of 1:50 with the following specifications : 15

1. Canal Particulars :

	U/S	D/S
Ground level	+120.60	+120.60
Bed level	+120.00	+118.60
FSL	+120.50	+119.10
Canal bund level	+121.10	+121.10
Canal bed width	1.60 m	1.30 m
Side slopes in cutting	1:1	1:1

2. Body wall :
- | | |
|------------------------|--|
| Top wall level | = +120·00 |
| Bottom level | = CC foundation top level = +118·60 |
| | = CC foundation bottom level = +117·85 |
| Top width | = 600 mm |
| Bottom width | = 1200 mm with U/S face vertical |
| Width of CC foundation | = 1·80 m with equal offset |
3. Notch wall :
- | | |
|-------------------------|-----------------|
| Thickness of notch wall | = 450 mm |
| Top level of notch wall | = CBL = +121·10 |
- Notch wall is constructed over body wall and one no. stepped notch is provided at the centre
4. CC apron on D/S :
- Provided in continuation with CC bed under body wall with same thickness
- | | |
|--------------------------|-----------|
| Length of CC apron | = 2·75 m |
| Top level of CC apron | = +118·60 |
| Bottom level of CC apron | = +117·85 |
5. Rough stone bed pitching on U/S :
- Width 300 mm size stone boulders to a thick of 300 mm and length of 1·5 m including toe wall of depth of 600 mm
6. Rough stone bed pitching on D/S :
- Width 300 mm size stone boulders to a thick 300 mm and length of 3·5 m including toe wall of depth of 600 mm
7. Revetment on U/S :
- Provided to the sides of canal from BL to FSL for a length 2·8 m a slope of 1:1 given at the end of revetment to connect it with BL
8. Reverent on D/S :
- The revetment starts from CBL at notch wall and is taken to a level of +120·50 at the end of CC apron in on inclined direction. From the end of CC apron, the revetment is continued at the same level up to the end of rough stone bed pitching and vertically dropped of to the level of +119·50. From this point, revetment is continued at the same level for a distance of 3·0 m.
- Rough stone boulders of size 300 mm are used for revetment of canal slopes.
