



c09-c-407

3428

**BOARD DIPLOMA EXAMINATION, (C-09)
SEPTEMBER/OCTOBER - 2020
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) Any missing data may be assumed suitably.
(4) Part—A need not be drawn to scale.

1. Sketch the cross-section of barrel of a tower head sluice from the following data :

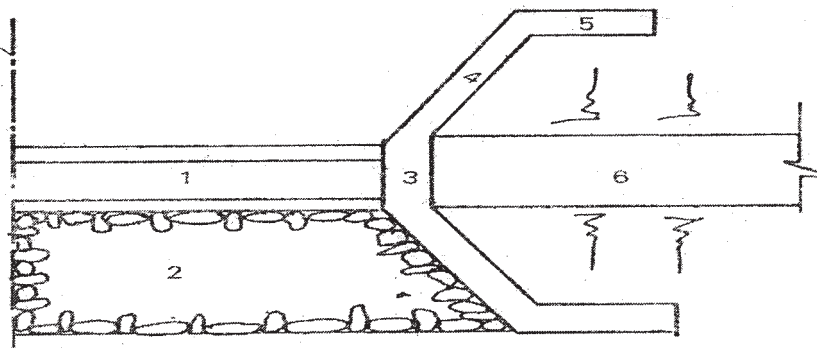
Vent way = 0.90 m wide × 0.75 m deep

Width of barrel side wall = 0.5 m at top and 0.75 m at bottom

Foundation with CC = 0.45 m thick with 0.3 m offset

RCC slab over barrel = 150 mm thick

2. Half plan at top of a surplus weir is shown in the figure below.
Name any four parts numbered 1 to 6 :



*

3. Draw the longitudinal section of the body wall of a canal drop with the following data :

Length of body wall = 9 m

Top of notch pier = +45.000

Top of body wall = +44.000

Top width = 600 mm

Bottom width = 1000 mm with u/s face vertical

Top of CC foundation = +42.80 m

Bottom of CC foundation = +42.20 m

Offset of CC foundation = 0.3 m on either side

Notch = Trapezoidal shape with bottom width 0.6 m
and side slopes 1 : 1

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

Internal dimensions = 3.5 m × 1.2 m × 1.2 m

Brick masonry wall thickness = 230 mm

CC offset for masonry walls = 300 mm

5. Draw the sanitary layout of a large building with 5 no. of bathrooms, 4 no. of water closets, 5 no. of bowl type urinals and 4 no. of wash basins.

PART—B

25+15=40

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

(2) Any missing data may be assumed suitably.

6. Draw the sectional elevation and plan of a square RCC overhead tank to a scale of 1 : 100 with the following data :

Height of the tank = 9.0 m

(from GL to bottom of the tank, i.e., top of floor slab or base slab)

Size of tank = 5 m × 5 m × 1.75 m

Thickness of RCC side walls = 200 mm

Thickness of RCC base/floor slab = 200 mm

Thickness of RCC roof slab = 110 mm

* /3428

2

[Contd...

*

Size of RCC column = 400 mm × 400 mm

No. of RCC column = 4 No. (one at each corner)

Size of RCC brace beams = 400 mm × 350 mm

Spacing of brace beams = 3.0 m C/C

Depth of RCC footing below ground level = 2.0 m

Size of footing at base = 1.6 m × 1.6 m

Thickness of footing at column face = 500 mm

Thickness of footing at the end = 200 mm

Thickness of levelling course below the footing =
200 mm (1 : 4 : 8) plain concrete

Size of ring beam below base slab = 400 mm × 450 mm

Dia of inflow pipe = 100 mm

Dia of outflow pipe = 75 mm

Size of manhole cover = 600 mm × 450 mm

Show the pipe connections, ladder, water level indicator, ventilating arrangements, etc. Assume any other data suitably if needed.

7. Draw the cross-section of a homogenous earthen bund with the following specifications to a scale of 1 : 50 :

Top width of bund = 1.5 m

TBL = +57.00

General ground level = +50.00

Stripped ground level = +49.70

Side slopes = $1\frac{1}{2} : 1$ on U/S and $2 : 1$ on D/S

Key trenches = 1.2 m wide and 0.6 m deep at 4.0 m C/C

Protection of U/S face of the bund :

The upstream face of the bund is provided with 300 mm thick rough stone revetment over 150 mm thick gravel backing. This revetment is founded on rough stone wall 1.0 m wide 1.0 m deep

Protection of D/S toe of the bund :

A rock toe with 300 mm rough stone boulders is provided with 900 mm width and top level being at +51.20

*

*

Side slopes of rock toe = 1 : 1

Sand filter = 200 mm thick and rear side and
at the bottom of the rock toe

Toe drain = A longitudinal drain is provided with bottom width 1.0 m and side slopes 1 : 1. This is in line with the outer surface of rock toe and taken to a level of +49.00. Rough stones of 300 mm thick are used for side revetment and bed pitching of toe drain.

030 030 030 030 030

*