

4623**BOARD DIPLOMA EXAMINATION, (C-14)****JUNE-2019****DCE - FIFTH SEMESTER EXAMINATION****CIVIL ENGINEERING DRAWING - II**

Time: 3Hours

Max.Marks: 60

PART-A**4x5=20M**

Instructions: 1) Answer all questions Each question carries 4 marks
2) Any missing data may be assumed suitably.
3) This part need not be drawn to scale.

- 1) Sketch the cross-section of pipe along with bedding and benching of a pipe culvert with the following data:
Internal diameter of the pipe=1.00m
Thickness of pipe =0.10m
No.of pipes=1
Thickness of concrete bed =200mm
Width of concrete bed = 1800mm
Thickness of concrete benching=350mm
- 2) Draw the cross section of an abutment of an RCC bridge from the following data:
Bottom level of CC foundation bed =51.00
Top level of CC foundation bed =51.50
Bed level=52.50
Bottom level of RCC slab =54.10
Width of bed block = 600mm
Thickness of bed block = 250mm
Bottom width of abutment = 900mm (Same width upto bed level)
Top width of abutment = 600mm at bed block level with water face vertical.

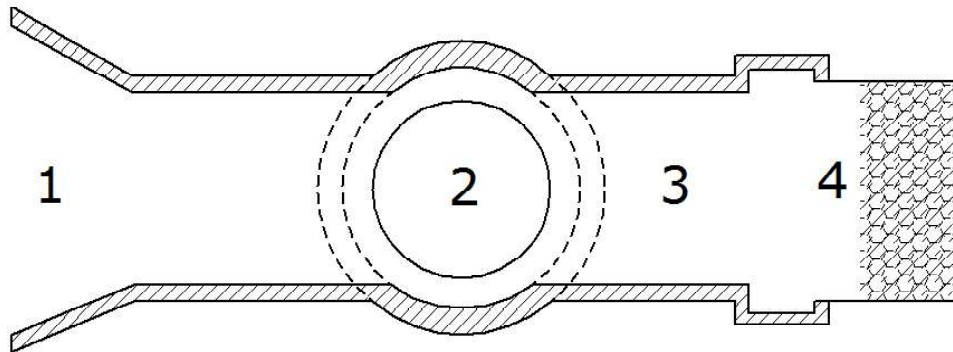
3) Draw the plan of a septic tank from the given specifications:

* Internal dimensions = 3.50m x 1.20m x 1.20m

Brick masonry wall thickness = 230mm

CC offset for masonry walls = 300mm.

4) Name the parts numbered 1 to 4 of the tank sluice whose plan is shown below fig 1.



5) Draw a section of canal drop.

PART-B

25+15=40M

Instructions: 1) Answer all questions

2) Any missing data may be assumed suitably.

3) The drawing must be to the scale.

6) Draw the longitudinal sectional elevation and plan of pipe culvert to the following particulars to a scale of 1:50 (15+10)

(1) Drain particulars:

Bed level = +50.350

Bed width near the pipe culvert = 1200mm

Side slopes of drain = 1:1

General G.L near the drain +51.550

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

* Side slope revetment shall be with 200mm size rough stone along the slopes to a length of 1200mm both on U/S and D/S from B.L to general G.L.

* **(2) Pipe details:**

Internal dia. of CC pipe = 1000mm

External diameter=1200mm

Bedding for the pipe =250mmC.C.

Benching for the pipe = 300mmC.C

Width of both bedding & pitching = 1800mm

Bottom level of C.C bedding = +50.00

No. of pipes =one

(3) Head walls:

At the end of pipe, two head walls are provided with brick masonry with the following details.

Length of head wall = 7200mm

Bottom level of head wall = +49.10

Top level of C.C bed provided under head walls = +49.10

Bottom level of C.C bed provided under head walls = +48.80

Width of CC bed = 1800mm

Bottom width of head wall = 1200mm

Profile of head wall = Outer surface vertical and earth fill face having a batter so that the top width = 450mm

Top level of head wall = +52.00

(4) Earth fill and embankment:

Formation width = 6,000mm

Side slopes = 2 horizontal to 1 vertical

Formation level = +54.00

Height of earth fill = 2.550m

* Guide stones on both the sides of formation : 450mmx450mm square guide stones are provided at a distance of 450mm from extreme edges of formation. These stones are taken to a depth of 600mm below formation level and extend to a height of 700mm above formation level at 3000 mm c/c

- 7) Draw the cross section of a homogenous earthen bund with the following specifications to a scale of 1:50 (15m)

Top width of bund = 1.5m

T.B.L = +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 = 1.2m wide and 0.6m deep at 4.0m C/C

Protection of upstream face of the bund:

The upstream face of the bund is provided with 300mm thick rough stone revetment over 450mm thick gravel backing. This revetment is founded on rough stone wall 1.0m wide and 1.0m deep.

Protection of a downstream toe of the bund:

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

Side slopes of rock toe = 1:1

Sand filter = 200mm thick drain is provided with bottom of the rock toe.

Toe drain = A longitudinal drain is provided with bottom width 1.0m 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 300mm thick are used for side revetment and bed pitching of toe drain.

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