

6625

BOARD DIPLOMA EXAMINATION, (C-16)

JUNE-2019

DCE- FIFTH SEMESTER EXAMINATION

CIVIL ENGINEERING DRAWING - III

Time: 3 Hours

Max. Marks: 60

## PART-A

5x4=20M

**Instructions:** 1) Answer **all** questions.2) Each question carries **four** marks.

3) Any missing data may be assumed suitably. This part need not be drawn to scale.

- 1) Draw the cross section of a pipe along with bedding and benching of a pipe culvert with the following data :

Internal diameter of the pipe = 1.00m

Thickness of the pipe = 0.1m

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 a R.C.C. bridge from the following data.

Bottom level of C.C. foundation bed = +51.00

Top level of C.C. bed = +51.50

Bed level = + 52.50

Bottom level of R.C.C. slab = + 54.10

Width of bed block = 600mm

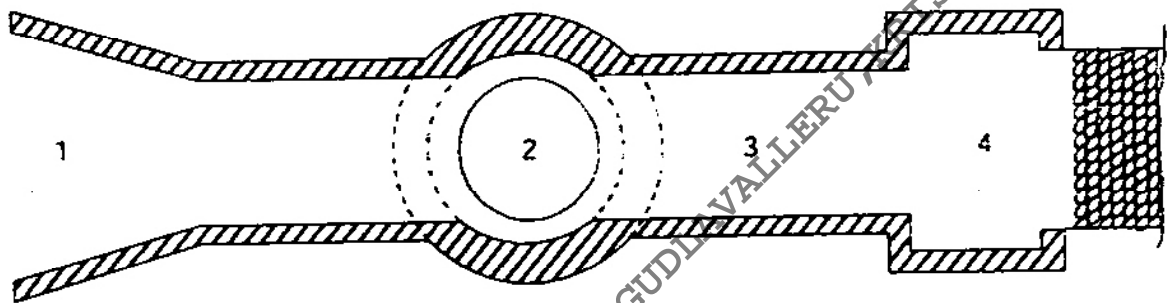
Thickness of bed block = 250mm

Bottom width of abutment = 900mm

(Same width up to bed level)

Top width of abutment = 600mm at bed block level with water face vertical.

- 3) Draw the cross-section of an empty soak pit  
 \* Diameter (internal) = 1000mm  
 Circular lining = 230mm thick brick lining with dry joints  
 Total depth of pit = 1.80m  
 General GL = 450mm below roof slab.  
 Inlet pipe with bend = 75mm dia and kept at 250mm below GL.  
 Roof covering = covered with removable precast concrete slabs 70mm thick.
- 4) Name the parts numbered 1 to 4 of the tank sluice whose plan is shown below.



- 5) The abutment of a surplus weir has a top width of 0.75m. TBL is +62.000. Top and Bottom levels of CC bed are +57.800 and +57.350 respectively. The abutment has a batter of 1 in 4 at water face and 1 in 6 at rear face. Offset of CC bed is 0.3m on either side. Draw the cross-section of the abutment.

### PART-B

10x5=50M

**Instructions:** 1) Answer **ALL** questions.

2) Figure in the margin indicate marks.

3) Any missing data may be assumed suitably. This part needs to be drawn to the given scale.

- 6) Draw the following views of septic tank to a scale of 1:20 from the given specifications. (10+15)

- a) Plan                      b) Longitudinal section

Internal dimensions = 900mm x 2750mm

Brick masonry wall thickness = 230mm

C.C. Offset for masonry walls = 300mm

Depth of water = 1000mm

Free board = 300mm

Thickness of R.C.C. roof panels = 100mm and width 450mm.

fitted with Bent handles for lifting.

|                           |  |
|---------------------------|--|
| Scum board                | = R.C.C. precast slab 75mm thick fixed at a height of 300mm from floor level and extending upto a 150mm below roof. This shall be fixed, at a distance of 900mm from inside of wall at inflow end, into a groove of 75mm deep. |
| Standing baffle           | = R.C.C. precast slab 75mm thick kept on floor at a distance of 600mm from inside wall at out flow end. The top of a baffle shall be 150mm below water level.  |
| Inflow and out flow pipes | = 100mm dia. Tee shaped pipes.   |
| Vent pipe                 | = 50mm dia. A.C. pipe with a cowl extending to a height of 2.0m above G.L  |
| Masonry pedestal          | = 450mm dia. circular brick masonry pedestal shall be provided around the vent pipe up to G.L.   |
| General ground level      | = 300mm above top of R.C.C. precast roof panels.   |

- 7) Draw the cross section of a homogeneous 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 0.6 m deep at 4.0m C/C.

**Protection to the upstream face of the bund:**

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

**Protection to a D/S toe of the bund:**

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

Slope of rock toe = 1:1

Sand filter = 200mm thick on rear side and at the 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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