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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

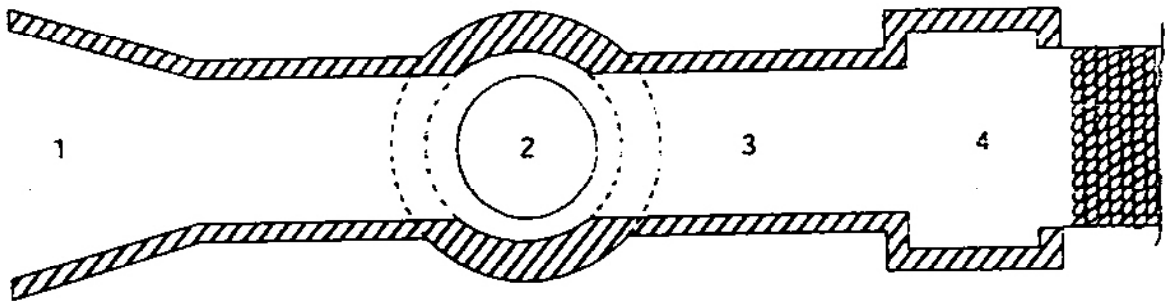
Bottom width of abutment = 900mm

(Same width up to bed level)

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

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- 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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