C09-C-**407**

3428

BOARD DIPLOMA EXAMINATION, (C-09)

MARCH/APRIL-2019

DCE - FOURTH SEMESTER EXAMINATION

CIVIL ENGINEERING DRAWING- II

Time: 3Hours Max. Marks: 60

PART-A

5x4=20M

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

1) Sketch the cross-section of a pipe culvert with a granular bedding with the following data:

   Internal diameter of the pipe=1.00 m

   Thickness of pipe = 0.10 m

   No. of pipes = 1

   Thickness of bed = 100 mm

   Width of bed = 1600 mm

   Thickness of benching = 350 mm

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 = 600 mm

   Thickneff of bed block = 250 mm

   Bottom width of abutment = 900 mm

   (same width up to bed level)

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

3) Draw the cross section of an empty soak pit with the following specifications

Diameter (internal) = 900 mm

Circular lining = 230 mm thick brick lining with dry joints

Total depth of pit = 1.70 m

General ground level = 450 mm below roof slab,

Roof covering with removable precast concrete slabs 70 mm thick.

4) A tank bund has a top width of 2.5 m ; T.B.L=+58.00,

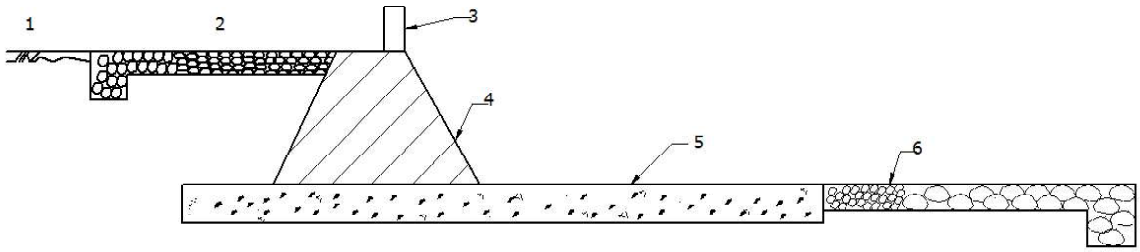
G.L=+48.50; Side slopes =2:1 on either side.

If the hearting zone is 1.00 m, above F.T.L=+56.00.

with its top width 1.6 m and side slopes 1:1

sketch the cross-section of the bund.

5) The longitudinal section of canal drop is shown below, name the parts.



PART-B

25+15=40 M

Instructions: 1) Answer all questions.
2) Any missing data may be assumed suitably.

6) Draw the following views of a septic tank to a scale of 1:20 from the given specifications

(a) Plan (b) Longitudinal section

Specifications:

Internal dimensions = 900 X 2750mm

Brick masonry wall thickness=230mm

Thickness of cc bed = 500mm

CC Offset for masonry walls=300mm

Depth of water = 1000mm

Free board=300mm

Thickness of RCC roof panels=100 mm and width 450mm fitted with bent handles for lifting.

Scum board=RCC precast slab 75mm thick fixed at a height of 300mm from floor level and extending up to a height 150mm below roof. This shall be fixed at a distance of 900mm from inside of wall at inflow and into a grove 75mm deep.

Standing baffle=RCC precast slab 75mm thick kept of floor at a distance of 600mm from inside of wall at outflow end. The top of baffle shallbe 150mm below water level.

Inflow and out let pipes=100mm dia. T-shaped pipes

Vent pipe=50mm dia.A.C pipe with 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 RCC precast roof panels.

7) Draw the Longitudinal section of a "Tower head sluice" with the following specifications given below.

Specifications;

Tank bund:

Top width = 1.8 m

T.B.L.=+163.500

M.W.L=+162.000

F.T.L=+161.300

Bed level =+159.100

Tower head:

Internal diameter = 1.2m

Top of RCC slab over well =+162.50

Thickness of Rcc slab =150 mm

Thickness of well seining =450 mm from top to a depth of 2m and 600 mm for the remaining height.

Opeing = 600mm dia. Opening is provided in the C.C diaphragm 75mm thick for following water into the barrel.

Shutter= wooden shutter 750mm wide 1500 mm depth and 50 mm thick is provided for regulating water.

Foundation for well =3.0m dia. And 600mm thick

Sluice barrel: Internal dimensions =750mm wide into 1.0m height

Roof for barrel = Rcc roof slab 150 mm thick.

CC foundation for barrel = 450mm thick and 1550mm wide is layed under barrel.

Lead chamber:

length of wing walls = 1.7m (Horizontal distance)

Profile of wing walls = wing walss start from +160.25 (top of the barrel slab) at the entrance of the barrel and sloped down to the bed level +150.10 the slop from G.L to bed level is 11/2:1

Stilling Cistern:

Internal diamensions: 3.0m x 3.0 m

Side walls are taken into canal bund level+160.75.

Masonry retaining walls of uniform thickness 450mm are constructed on either.

Side of barrel roof so as to protect the slopes of earthen bund and to prevent any possibility of falling of earth into lead chamber on U/S side and into stilling cistern on D/S side.

Canal Bed level=+159.10

Canal bund level=+160.750

Rough stone revetment:

The upstream side of the tank is provided with 450mm size rough stone reventment over 150mm thick gravel cushioning from T.B.L to bed level to protect the upstream slope erosion due to wave action.

Side of canal are provided with 300mm thick rough stone revetment over 150mm thick gravel backing for a length of 1.4 m bed pitching is also provided in the canal to a length of 1.20 m with 300mm size rough stone and a toe is provided at its end and taken to a depth of 300mm below bed level of canal.

Width of toe = 300mm.

General ground level at the site=+159.50.

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