



C09-C-407

**3428**

**BOARD DIPLOMA EXAMINATION, (C-09)**

MARCH / APRIL - 2019

**DCE - IV 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 *FIVE* marks.
  - (3) All dimensions are in mm.
  - (4) Any missing data may be assumed suitably.
  - (5) Part - A need not be drawn to a scale.

- 1 Draw the cross section of a pipe culvert with the following data :

Internal diameter of the pipe	=	1000 mm
Thickness of the pipe	=	100 mm
No. of pipes	=	01
Thickness of concrete bed	=	250 mm
Thickness of concrete benching	=	300 mm
Width of concrete bed and benching	=	1800 mm
  
- 2 Draw the elevation of a wing wall with return wall to the abutment of a bridge :

RL of bed level	=	+ 74.00
RL of road top	=	+ 78.00
RL of top of the return wall	=	+ 76.00

General Ground level = 75.00

The projected horizontal length of wing wall from the end of the abutment = 3.2 m

The length of return wall = 2.1 m

Splay of wing wall and earth filling = 1.1

Width of splay = 0.6 m

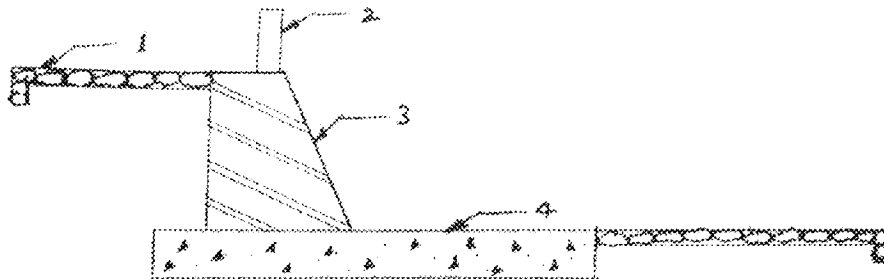
- 3 Draw the C/S of wash basin fixed to a wall at a height of 710 mm with following data :

Height of room = 3.0 m

Slab thickness = 150 mm

Size of wash basin = 650 × 450 mm

- 4 Name the component parts of body wall of canal drop shown below :



- 5 Draw the cross section of tower head of a tank sluice given :

Size of well (internal) = 1.00 m

Height of the well = 4.00 m

Thickness of masonry:

Side walls upto 2.0 m = 0.60 m

above 2.0 m = 0.45 m

CC foundation width = 2.8 m

CC foundation thickness = 0.6 m

Platform slab thickness = 150 mm

**PART - B****25+15=40**

- Instructions :**
- (1) Answer both the questions to a scale.
  - (2) Assume suitable data, if necessary.
  - (3) All dimensions are in mm take suitable scale whenever required.

6 Draw, the plan and longitudinal section of a septic tank to a 25 scale of 1 : 20 from the given specifications :

- Size of tank = Width 900 mm (Internal)  
 Length 2750 mm (internal)  
 Depth : 1300 mm including a free board of 300 mm
- Brick Masonry wall = 230 mm
- Thickness of CC bed = 500 mm
- CC offset for masonry walls = 300 mm
- Thickness of RCC Roof panels handles for lifting = 100 mm and width 450 mm fitted with bent.
- Scum board = RCC precast slab 75 mm thick fixed at a height of 300 mm from floor level and extending up to a height of 150 mm below roof. This shall be fixed at a distance of 900 mm from inside wall at inflow end into a groove 75 mm deep.

Baffle wall	=	RCC precast slab 75 mm thick kept on floor at a distance of 600 mm from inside wall at outlet flow end. The top of baffle shall be 150 mm below water level.
Inlet and outlet pipes	=	Tee shaped stone ware pipes 100 mm dia
Vent Pipe	=	50 mm dia A.C. Pipe with a cowl extending to a height of 2.0 m above ground level.
Masonry pedestal	=	450 mm dia circular brick masonry pedestal shall be provided around the vent pipe upto Ground Level.
General Ground Level	=	300 mm above top of RCC precast roof panels.

7 Draw the longitudinal section of CANAL DROP to a scale of 1 : 50 with following specifications : **15**

(i) Canal particulars :	U/S Side	D/S Side
Ground level at site	+133.750	+133.750
Bed level	+133.200	+132.000
FSL	+133.650	+132.450
Canal Bund level	+134.100	+134.100
Side slopes in cutting	1 : 1	1 : 1
Level of 1m wide berm	+133.750	+133.750
Slopes in embankment		
Water face	1 1/2 : 1	1 1/2 : 1
Rear face	2 : 1	2 : 1

## (ii) Body wall :

Top level	=	+133.200
Bottom level / CC foundation top level	=	+132.000
CC foundation bottom level	=	+ 131.250
To width	=	600 mm
Bottom width	=	1000 mm with U/S face vertical
Length	=	8.5 m
Width of CC foundation	=	1.6 m with equal offset on either side.

## (iii) Notch wall :

Thickness of notch wall	=	450 mm
Top level of notch wall	=	+134.100
No of notches	=	1 No.
Shape	=	Rectangular
Sill level of notch	=	U/S bed level

## (iv) CC apron on D/S Drop :

CC apron shall be provided in continuation with CC bed under body wall with same thickness (750 mm) Length of CC apron from edge of CC bed under body wall is 3.0 m.

Top level of CC apron = Bed level canal on

D/S = +132.000 m

(v) Rough stone bed pitching :

Upstream side : Bed pitching consists of 300 mm size stone boulders to a length of 1.5 m including toe.

Downstream side : Bed pitching consists of 300 mm size stone boulders to a length of 3.40 m including toe.

(vi) Revetment to canal slopes :

(a) Length on U/S side revetment is provided to the sides of canals from bed level to FSL for a length of 3.0 m with 300 mm size stone boulders. A slope of 1:1 is given at the end of side revetment to connect FSL and bed level.

(b) Downstream side : Revetment for D/S slopes start from canal bund level at notch wall and is taken to a level of +133.650 (FSL on U/S) at the end of CC apron in an inclined direction. From the end of CC apron revetment is continued at the same level (+133.650) up to end of rock stone pitching and vertically dropped to the level of + 132.750. From this point revetment is continued at the same level for a distance of 3.40 m. 300 mm size rough stone boulders are used for revetment. The end of revetment is given a slope of 1:1 in order to reach canal bed level on D/S.