* 3 4 2 8 *

C09–C–**407**

3428

BOARD DIPLOMA EXAMINATION, (C–09)

OCT/NOV—2013

DCE—FOURTH SEMESTER EXAMINATION

CIVIL ENGINEERING DRAWING—II

Time : 3 hours] [*Total Marks* : 60

PART—A

Instructions : (1) Answer **all** questions.

(2) Each question carries **four** marks.

(3) This part need not be drawn to a scale.

(4) Assume any missing data suitably.

1. Draw the cross-section of a pipe culvert with the data given below :

Internal dia of the pipe = 1200 mm

Thickness of the pipe = 100 mm

No. of pipe = 1

Thickness of CC bed for the pipe = 200 mm

Thickness of CC benching = 320 mm

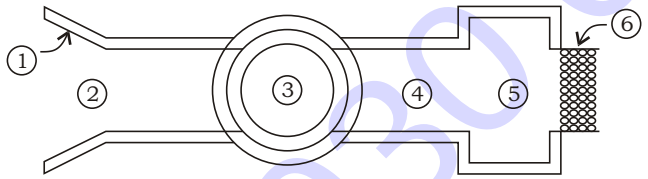
Width of CC bed, CC benching may be taken as 2000 mm

2. Draw the C/S of RCC T-beam bridge of two spans duly showing CC bed, abutments, pier, T-beam, deck slab and wearing course.

3. Draw the sectional plan of RCC overhead tank from the data given below :

Size of water tank = 4500 mm × 4500 mm
Thickness of sidewalls = 200 mm
Columns' size = 400 mm × 400 mm
Size of column footings = 1500 mm × 1500 mm
Size of brace beams = 300 mm × 300 mm

4. Name the parts numbered from 1 to 6 of the following figure (tank sluice with tower head) :



5. Sketch the part of longitudinal section of aqueduct at drain duly showing at least four components.

PART—B

Instructions : (1) Answer **all** questions.

(2) Marks are indicated against each question.

(3) This part need to be drawn in given scale.

(4) Assume any missing data suitably.

6. Draw the half plan at bottom and half plan at top of the given slab culvert and its sectional elevation : 15+10=25

(i) Foundation for abutment and wing walls :

Bottom level of levelling course = +51·80 m
Top level of levelling course = +53·10 m
Width of levelling course = 1500 mm
Thickness of CC foundation bed = 500 mm

Width of CC foundation bed = 1500 mm

Bottom level of abutment and wing walls and top level of CC foundation bed = + 53·60 m

Bottom width of abutment = bottom width of wing wall = 900 mm

Bed level = + 54·60 m

(ii) Superstructure :

(Profile of abutments and wing walls)

Width of abutments and wing walls = 900 mm up to bed level

Top width 600 mm and battered on rear side

Thickness of bed block = 250 mm

Width of bed block = 600 mm

Bottom level of RCC slab = + 56·20

Thickness of RCC slab = 200 mm

Thickness of wearing course = 100 m

Top level of wearing course = + 56·50

Kerb width = 200 mm

Top level of kerb = + 56·75

Thickness of parapet wall = 400 mm

Top level of parapet wall = + 57·25

Length of abutment = 8600 mm

Width of roadway = 7400 mm

Length of wing wall = 2800 mm

(iii) Vent way :

Height and width of vent way = 1600 mm × 2000 mm

Bed pitching = 200 mm rough stone boulders

Cutoff walls of 200 mm thick are provided at the ends.

Top level of cutoff wall = + 54·60

Bottom level of cutoff wall = + 54·00

CC bed for cutoff wall and foundation = 800 mm wide and 300 mm deep

Sides of stream are provided with 200 mm thick rough stone boulders at a slope of 1 : 1 from bed level to formation level

7. Draw the longitudinal section of a canal drop to a scale of 1 : 50, given the following data : 15

(i) Canal particulars :

	U/S	D/S
Natural ground level	+ 53·75	+ 53·75
Bed level	+ 53·20	+ 53·00
FSL	+ 53·65	+ 52·45
Canal bund level	+ 54·10	+ 54·10
Basin level (1000 mm wide)	+ 53·75	+ 53·75
Side slopes	1 : 1	1 : 1
Embankment slope (water face)	1½ : 1	1½ : 1

(ii) Body wall and notch wall :

Top level = + 53·20

Bottom level = + 52·00

Bottom level of CC foundation = + 51·25

Top width = 600 mm

Bottom width U/S face vertical = 1000 mm

Width of CC foundation = 1600 mm (equal offsets)

Thickness of notch wall = 450 mm

Top level of notch wall = + 54·10

Notch = Rectangular and 1 No.

Sill level of notch = + 53·20

(iii) Solid Apron :

Solid apron in CC in continuation with CC bed under body wall with same thickness

Length of solid apron = 3000 mm

Top level of CC apron = Bed level of canal on D/S = + 52·00 m

Rough stone pitching on U/S bed is of 300 mm size up to a length of 1600 mm including toe and on D/S up to 3400 mm

(iv) Revetment details :

Provide revetment on U/S from bed level to FSL for a length of 3000 mm with 300 mm size boulders at 1 : 1 slope at the end of revetment between FSL and bed level

Provide revetment on D/S from canal bund level to notch wall and at a level of + 53·65, at the end of CC apron in an inclined direction.

From the CC solid apron revetment is continued at the same level up to end of rough stone pitching and vertically dropped to the level of + 52·75.

Revetment is continued at dropped level up to 3400 mm.

At the end 1 : 1 slope is provided to reach canal bed level.

★ ★ ★