C09–C–**407**

3428

BOARD DIPLOMA EXAMINATION, (C–09)

MARCH/APRIL—2014

DCE—FOURTH 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 **four** marks.

(3) Any missing data may be assumed suitably.

(4) This part need not be drawn to scale.

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

   Internal dia of the pipe—1100 mm

   Thickness of the pipe—100 mm

   No. of pipe—1

   Thickness of concrete bed for pipe—220 mm

   Thickness of CC bending—350 mm

   Width of concrete bed, CC bending may be taken as 2000 mm

2. Draw the elevation of wing wall with return wall to the abutment of a bridge (Data given) :

Bed level— + 54·00 m
Road level— +58·00 m
Top level of return— +56·00 m
Natural ground level— +55·00 m

Projected horizontal length of wing wall from the end of abutment—3000 mm
Length of return wall—2000 mm
Splay of wing wall—1:1
Width of wing wall—550 mm uniform

3. Draw the plan of septic tank, whose inside dimensions are 4200 mm × 1200 mm × 1600 mm deep. Take the thickness of side walls as 230 mm and c.c. foundation offset of 200 mm.

4. Draw the LS of a canal drop as a sketch to show at least of five components.

5. Draw the cross-section (across the body wall) of surplus weir, given the following data :

FTL : + 58·50 m
TBL : + 60·00 m
Ground level : + 58·00 m
Top width of body wall : 800 mm
Bottom width of body wall : 1400 mm

Take equal batter on both the sides.

Top level of c.c.
 foundation bed : + 55·00 m
Bottom level of foundation bed : + 54·40 m
Offset on either side : 300 mm
Length of wing wall : 3·8 m on U/s and 3·5 m on D/s
Top level of return wall : + 59·20 m on U/s
 + 58·20 m on D/s
Ground level at wing walls : + 57·20 m

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

              (2) Figures in the margin indicate marks.

              (3) Any missing data may be assumed suitably.

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

6. Draw the sectional elevation of an RCC overhead tank at a scale of 1:50 with the given data, duly showing pipe connections, valves, ladder, etc., arrangements :   18+7=25

    Height of the tank above GL—10·80 m

    Size of the water tank—4·5 m × 4·5 m × 1·6 m

    Thickness of RCC side walls—200 mm

    Thickness of cover slab—120 mm

    Thickness of base slab—210 mm

    Size of columns—400 mm × 400 mm

    Size of brace beams—300 mm × 300 mm

    Spacing between braces—3400 mm

    Size of ring beam—450 mm × 450 mm

    Depth of RCC footing below GL—1200 mm

    Footing size at bottom—1400 mm × 1400 mm

    Thickness of footing at column face—450 mm

    Thickness of footing at end face—200 mm

    Thickness of CC below RCC footing—230 mm

    Take diameter of pipes—100 mm

7. Draw the cross-section of a homogeneous Earthen Bund with the following specifications, at a scale of 1:100 : 15

Top width of bund : 1600 mm

TBL : + 60·50 m

General ground level : + 53·00 m

Stripped GL : + 52·80 m

Side slopes 1½ : 1 on U/s and 2 : 1 on D/s

Provide key tranches of 1250 mm wide and 700 mm deep at 3600 mm c/c.

U/s face of the bund is provided with 300 mm thick rough stone revetment over 150 mm thick gravel backing. This revetment is founded on toe of 1000 mm wide and 1300 mm deep. On D/s face, a rock toe with 300 mm rough stone boulders is provided with 1000 mm top width and top level being at + 54·20 m. Take side slope of rock toe as 1:1. Provide sand filter of 200 mm thick on rear side and at the bottom of the rock toe. Provide a longitudinal drain with bottom width 1000 mm and side slopes 1:1. This is in line with the outer surface of rock toe and taken to a level of +51·00 m. Rough stones of 300 mm size are used for side revetment and bed pitching of toe drain.

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