C16–C–**506**

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BOARD DIPLOMA EXAMINATION, (C–16)
OCT/NOV—2018
DCE—FIFTH SEMESTER EXAMINATION

CIVIL ENGINEERING DRAWING—III

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 suitably assumed.

(4) PART—A need not be drawn to scale.

1. Draw the sectional elevation of a slab culvert showing sloped wing wall, return wall, RCC slab, bed pitching with vertical water face of abutment and label the parts.

2. Sketch the cross-section of an abutment of a T-beam and slab bridge with the following data :

Road formation level = 102·50, bottom level of RCC slab = +102·30, FSL = +101·50, BL = +100·00, top level of CC bed = +99·00, thickness of RCC slab = 200 mm, depth of T-beam = 500 mm, size of CC bed block = 600 mm × 600 mm × 150 mm, top width of abutment = 700 mm, bottom width of abutment = 1200 mm and the abutment has batter on rear side above bed level and uniform width below bed level, width of CC bed = 1600 mm, thickness of CC bed = 500 mm

3. Draw the plan of a septic tank of internal dimensions = 1000 mm × 2500 mm, brick masonry side walls = 230 mm, CC offset for masonry walls = 300 mm. Also show the position of scum board, baffle wall, inflow and outflow pipes, vent pipe, etc.

4. Sketch the section of a homogeneous tank bund with the given data :

Top width = 1·2 m, TBL = +62·00, GL = +58·00, stripped GL = +57·60, free board = 1 m, side slopes = 1·5 : 1 on U/S and 2 : 1 on D/S, key trenches = 0·6 m × 1·2 m @ 4 m C/C, revetment = 300 thick rough stone over 150 mm gravel backing, toe drain = 1 m bed width and 1 m below GL with 1 : 1 side slopes. Also provide rock toe and toe wall below revetment.

5. Name the parts of a surplus weir numbered from 1 to 4 from the diagram shown below :
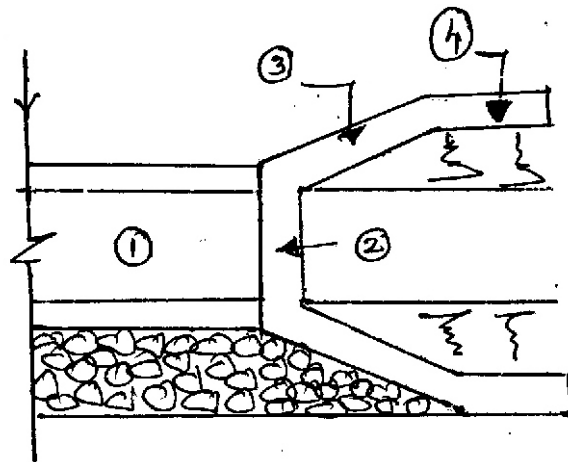
PART—B   25+15=40

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

(2) Any missing data may be suitably assumed.

(3) PART—B must be drawn to scale.

6. Draw the sectional elevation of RCC overhead tank to a scale of 1 : 50 with the following details :

Specifications :

Height of tank above GL up to the bottom of tank = 9 m
Size of tank = 4 m × 4 m × 2 m

Thickness of side walls = 200 mm
Thickness of base slab = 200 mm
Thickness of roof slab = 100 mm
Size of columns = 400 mm × 400 mm (4 nos.)
Size of brace beams = 300 mm × 300 mm
Spacing of brace beams = 3 m C/C
Size of ring beams below the base slab = 300 mm × 350 mm
Depth of RCC footing below GL = 1·5 m
Size of footing = 1·5 m × 1·5 m
Thickness of footing at column face = 500 mm
Thickness of footing at the end = 200 mm
Thickness of levelling course with CC (1 : 4 : 8) = 200 mm
CI inlet pipe = 200 mm and outlet pipe = 150 mm
Diameter of washout pipe = 100 mm
Ventilating pipe = 200 mm
Overflow pipe at the bottom of roof slab = 100 mm
Size of manhole cover = 600 mm × 450 mm

Also show the inlet pipe, outlet pipe, water level indicator, manhole, ladder, ventilating pipe, overflow pipe and washout pipe, etc. 25

7. Draw the longitudinal section of a canal drop to a scale of 1 : 50 from the following specifications : 15

Specifications :

Canal particulars	U/S	D/S
Ground level at site	+120·60	+120·60
Bed level	+120·00	+118·60
FSL	+120·50	+119·10
Canal Bund Level (CBL)	+121·10	+121·10
Canal bed width	1·60 m	1·3 m
Canal bund width	1 m	1 m
Canal slopes in cutting	1 : 1	1 : 1
Slopes in embankment	1·5 : 1	1·5 : 1
Rear face to connect GL	2 : 1	2 : 1

Body wall : Top level = +120·00, bottom level = CC bed top level = +118·60, CC bed bottom level = +117·85, top width = 600 mm, bottom width = 120 mm with U/S face vertical, length = 8·5 m, width of CC bed = 1·8 with equal offset.

Notch pier : Thickness of notch wall = 450 mm, top level of notch wall = CBL = +121·10. Notch wall is constructed over body wall and one no. of stepped notch is provided at centre with its sill level at bed level of canal on U/S.

CC apron on D/S of drop : CC apron shall be provided in continuation with CC bed under body wall with same thickness. Length of CC apron from the edge of CC bed under body wall is 2·75 m. Top level of CC apron = bed level of canal on D/S = +118·60, bottom level of CC apron = +117·850.

Rough stone bed pitching on U/S : Consists of 300 mm size boulders provided to a length of 1·5 m including toe and on D/S provided to a length of 3·5 m.

Revetment to canal slopes on U/S : Revetment is provided to the sides of canal from bed level of FSL for a length of 2·8 m. A slope of 1 : 1 is given at the end of revetment to connect it with bed level.

Revetment to canal slopes on D/S : The revetment consists of 300 mm size boulders, starts from canal bund level at the notch wall and is taken to a level of +120·50 (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 +120·50 up to the end of rough stone pitching and vertically dropped to the level of +119·50, from this point revetment is continued at the same level for a distance of 3 m.

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