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BOARD DIPLOMA EXAMINATION, (C-16)

MARCH/APRIL-2019

DCE- FIFTH SEMESTER EXAMINATION

CIVIL ENGINEERING DRAWING - III

Time: 3Hrs   Max. Marks: 60

PART-A

5x4=20M

Instructions: 1) Answer all questions. Each question carries four marks
2) Any missing data may be suitably assumed.
3) PART-A need not be drawn to scale

1) Draw the C/S across a pipe culvert with the following particulars and label the parts:

   Internal dia.of pipe=1000mm

   External dia.of pipe=1200mm

   No.of pipes=1

   Thickness of bedding= 200 mm

   Thickness of benching=300mm.

2) Sketch the cross section of an abutment of a T beam bridge with the following data.

   Road formation level=+53.70

   Bottom level of R.C.C slab=+53.50

   F.S. L=+52.00

   B.L=+50.00

   Top level of C.C bed=+49.00

   Thickness of R.C.C slab=200mm

   Depth of T beam=500 mm

   Size of C.C Bed block=600x600x150 mm

   Top width of abutment=700 mm

   Bottom width of abutment=1200 mm

Width of C.C bed =1600 mm

Thickness of C.C bed=300 mm.

3) Draw the plan of a R.C.C overhead tank from the data given below and mention the dimensions on the sketch.:

Internal size of the tank = 5 x 5m

Thickness of R.C.C side walls=200 mm

Size of colums=400x400mm (one at each corner)

Size of footing =1600x1600 mm

4) Sketch the C/S across a well of tower head sluice from the following particulars:

Internal dia.of well =1200 mm

Height of well =4.2 m
Thickness of well steining =0.45m at top to a depth of 2m and 0.6m for the remaining

C.C foundation =0.5m thick with 0.3 m offset

Thickness of slab over well=150mm

Wooden shutter=0.7m wide and 1.2m deep

provide suitable screw gearing arrangement.

5) Sketch the longitudinal section of a canal drop showing notch pier, body wall,C.C bed ,solid aprons from the follwing data.

Top of notch pier=+50.00

Top of body wall=+49.00

Top of C.C bed=+47.80

Bottom of C.C bed=+47.20

Width of notch pier=450 mm

Top width of body wall=600mm

Bottom width of body wall=1000mm with U/S face vertical

With of C.C. bed = 1600mm with equal offset on either side

Length of C.C. apron=2m with 600mm thick.

PART-B

Instructions: 1) Answer all questions.

2) Any missing data may be suitably assumed.

3) PART-B must be drawn to scale.

6) Draw the plan and Longitudinal section of a Septic tank to a scale of 1:50 from the given specifications.   10+15=25

Specifications :

Internal dimenstions = 1800x5500mm

Height of tank = 2m including free board of 400 mm

Brick masonry wall thickness = 400mm for bottom half and 300mm for the remaining height. (offset on outer side of wall)

Thickness of C.C bed (1:3:6) = 500 mm

C.C. offset for masonry walls = 300mm

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

baffle wall = R.C.C. baffle 100mm thick and 750mm height is provided at a distance of 700 mm from outlet end.

Scum board = R.C.C. scum board of 100mm thick and 800mm height is provided at a distance of 1000mm from inlet end and 200mm clearance at top.

Inflow and out flow pipes = 100 dia Tee shaped pipes.

Vent pipe = 50mm dia A.C pipe with C.I. cowl extending to a height of 2m above G.L.

Masonry pedestal = 450mm dia. Circular brick masonry pedestal shall be provided around the vent pipe upto G.L

General Ground level = 300mm above top of R.C.C. precast roof panels.

7) Draw the cross-section of a non-homoeneous Earthen Bund (Zoned type) with the given specifications to a scale of 1:100.

T.B.L = +60.50

F.T.L = +58.50

M.W.L = +59.20

General ground level at site = +50.00

Stripped ground level = +49.25

Top width of bund = 2.5m

Side slopes of bund = 2H to 1V on both water face and rear race

Hearting :

Top width = 1.75m

Side slopes = 1H to 1V on both sides

Top level = + 59.20 (M.W.L).

Cut-off trench :

Bottom width = 2.5m

Side slopes = 1:1 on both sides

Bottom level = +46.00

Sand chimney :

Thickness = 1.25m

Slopes = 1:1 (parallel to side slope of hearting)

Horizontal casing or sand blanket :

Thickness =1m and laid over longitudinal filter with its top level at +51.40.

Rock toe :

Top level = +52.20

Top width = 1.5m out of total width 2.5m at the level + 52.20

Side slopes = 1:1 on both sides & rock toe is filled with broken stones of varying size from 200 to 500mm on earthen bund side, rock toe is provided with 150mm thick fine sand and below that 250mm thick coarse sand.

Longitudinal filter :

Bottom level of longitudinal filter is taken 400mm below stripped ground level + 48.55 in order to accommodate 250mm thick coarse sand and 150mm thick fine sand below that.Stones of varying size from 250 mm to 300mm are laid to a depth of 0.75m and same fine and coarse sand layers laid over stones on which casing of 1m thick is provided, bottom width = 1.5m with side slopes of 1:1 and same size filter media is provided in the cross filter and extended into the rock toe.

Toe drain :

Bottom level = +48.55
Bottom width = 1m
side slopes = 1:1 on both sides
Bed pitching and side revetment = 300mm rough stones are used.
The U/S face of the bund is provided with 450mm thick rough stone revetment over 250mm thick gravel backing.

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