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BOARD DIPLOMA EXAMINATION, (C-16)

JANUARY/FEBRUARY—2022

DCE - FIFTH SEMESTER EXAMINATION

CIVIL ENGINEERING DRAWING – III

Time : 3 hours]

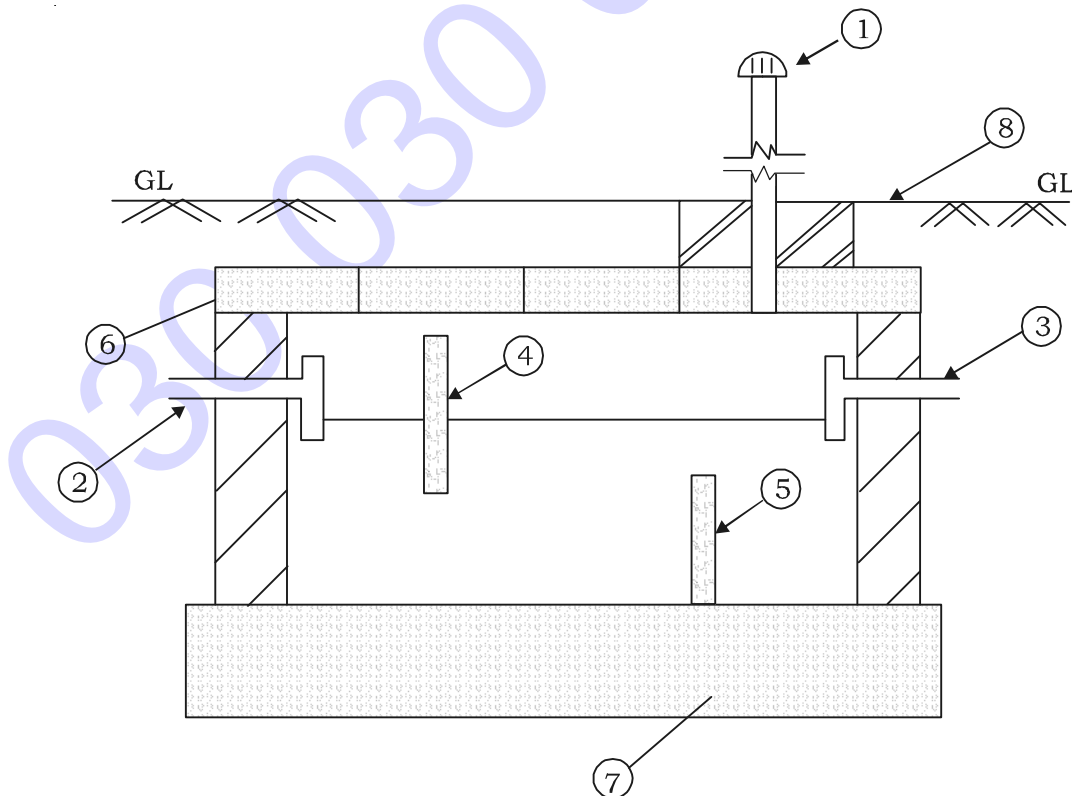
[Total Marks : 60

PART—A

4×5=20

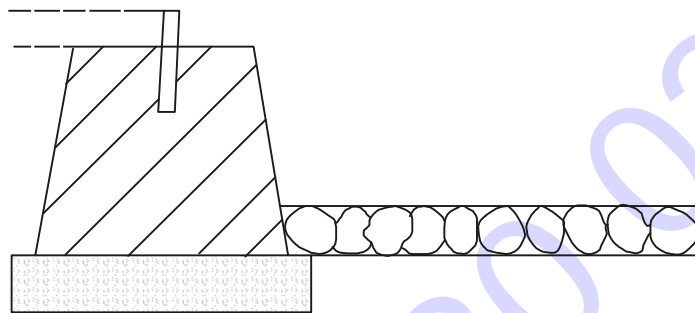
- Instructions :**
- (1) Answer **all** questions.
 - (2) Each question carries **four** marks.
 - (3) Any missing data may be assumed suitably.
 - (4) This part need not be drawn to scale.

1. Name the parts in the following figure :

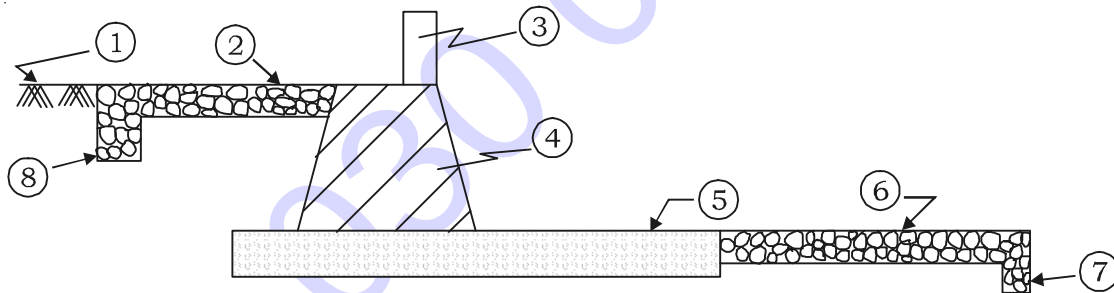


2. Redraw and mention the following parts in the given figure :

- (a) MWL
- (b) FTL
- (c) Weir wall
- (d) Apron
- (e) Dam stone



3. Name the parts from 1 to 8 in the following figure :



4. Write down any six components of a canal regulator.

5. Draw the part of cross-section of an RCC bridge from the following data :

Bottom level of CC foundation bed = 51.00

Top level of CC foundation bed = 51.50, Bed level = 52.50

Bottom level of RCC SLAB = 54.10, Width of bed block = 600 mm

Thickness of bed block = 250 mm, Bottom width of abutment = 900 mm
(Same width upto bed level)

Top width of abutment = 600 mm at bed block with water face vertical.

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PART—B

- Instructions :** (1) Answer **all** questions.
(2) Any missing data may be assumed suitably.
(3) This part need to be drawn in given scale.

- 6.** The following are the particulars of a pipe culvert. Read the particulars along with the specifications and draw to a convenient scale the following views (1) PLAN and (2) LONGITUDINAL SECTION : 10+15=25

(1) DRAIN PARTICULARS :

Bed level	= +50.350
Bed width near the pipe culvert	= 1200 mm
Side slopes of drain	= 1 : 1
General ground level near the drain	= +51.550

Bed pitching and side slope revetment on both U/S and D/S = 200 mm rough stone bed pitching to a length of 1200mm shall be provided both on U/S and D/S sides. A toe of same width (200 mm) shall be taken to a level of +50.00 at the end of bed pitching.

Side slope revetment shall be with 200 mm size rough stone along the slopes to a length of 1200 mm both on U/S and D/S from bed level to general ground level.

(2) PIPE DETAILS :

Internal dia of CC pipe	= 1000 mm
External dia of CC pipe	= 1200 mm
Bedding of the pipe	= 250 mm CC
Benching for the pipe	= 300 mm CC
Width of both bedding and pitching	= 1800 mm
Bottom level of CC bedding	= +50.00
No. of pipes	= one

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* (3) **HEAD WALLS :**

At the end of the pipe, two head walls are provided with brick masonry with the following details :

Length of a head wall = 7200 mm

Bottom level of head wall = +49.10

Top level of CC bed provided under head walls = +49.10

Bottom level of CC bed provided under head walls = +48.80

Width of CC bed = 1800 mm

Bottom width of head wall = 1200 mm

Profile of head wall = outer surface vertical and earth fill face having a batter so that the top width = 450 mm

Top level of head wall = +52.00

(4) **EARTH FILL AND EMBANKMENT :**

Formation width = 10,000 mm

Side slopes = 2 horizontal to 1 vertical

Formation level = +54.00

Height of earth fill = top level of formation-top level of pipe

= 54.00 – 51.450 = 2.550 m

GUIDE STONES ON BOTH THE SIDES OF FORMATION :

* 450 mm × 450 mm square guide stones are provided at a distance of 450 mm from extreme edges of formation. These stones are taken to a depth of 600 mm below formation level and extend to a height of 700 mm above formation level at 3000 mm C/C.

7. Draw the cross-section of a homogeneous earthen bund with the following specifications to a scale of 1 : 100 :

15

Top width of bund	= 1.5 m
TBL	= +65.00
General ground level	= +58.00
Stripped ground level	= +57.80
Side slopes	= 1.5 : 1 on U/S and 2 : 1 on D/S
Key trenches	= 1.2 m wide and 0.6 m deep at 4.0 m c/c

Protection of U/s face of the bund : the 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 a toe of 1 m wide and 1.2 m deep.

Protection of D/S face of the bund : a rock toe with 300 mm rough stone boulders is provided with 1000 mm top width and top level being +59.50. Slopes of rock toe = 1 : 1.

Sand filter : 200 mm thick on rear side only and at the bottom of the rock toe.

Toe drain : a longitudinal drain is provided with bottom width 1 m and side slopes 1 : 1. This is lined with the outer surface of rock toe and taken to a level of +56.00. Rough stones of 300 mm size is provided for revetment and bed pitching of toe drain.
