

B. TECH. (CBCS - 2014 COURSE) SEM – VIII (CIVIL ENGG.) :
SUMMER - 2018

SUBJECT-ELECTIVE-III HYDRAULIC STRUCTURES

Day: **Saturday**
Date: **09/06/2018**

S-2018-4661

Time: **02.30 PM TO 05.30 PM**
Max. Marks: 60

N.B.:

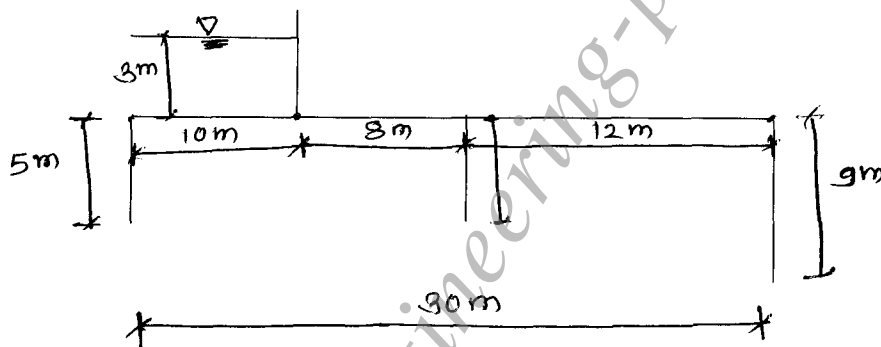
- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Non programmable **CALCULATOR** is allowed.
- 4) Assume suitable data if necessary.

Q.1 a) What is a diversion head works? What are their functions? **(05)**

b) Differentiate between weir & barrage with neat sketch. **(05)**

OR

Following figure shows a hydraulic structure built on fine sand determine i) **(10)**
whether the percolation gradient is safe ii) Thickness of floor at these points
Use Bligh's theory. Take $G=2.30$



Q.2 Design an irrigation channel to carry a discharge of 35 cumecs by Kennedy's theory. Assume a slope of 1 in 4500, $N=0.025$ & $m=1.0$ **(10)**

OR

Discuss the design procedure of canal by Lacey's method. **(10)**

Q.3 Design a cross regulator for the following data **(10)**

Discharge of parent channel = 1000 cumecs

$$\text{FSL width parent channel} = \frac{u/s}{d/s} = \frac{218.10}{217.90}$$

$$\text{Bed width of parent channel} = \frac{u/s}{d/s} = \frac{42m}{38m}$$

$$\text{Depth of water in parent channel} = \frac{u/s}{d/s} = \frac{2.5m}{2.5m}$$

$$\text{Permissible exit gradient} = \frac{1}{5}$$

OR

What is a canal fall? Write the criteria to select the location of canal fall. **(10)**
Describe Ogee type fall & stepped falls.

Q.4 Differentiate between **(10)**

- i) Siphon aqueduct & canal siphon
- ii) Aqueduct & super passage

OR

a) Write the selection criteria of type of cross drainage work? **(05)**

b) Write the features & design of cross drainage work. **(05)**

P.T.O.

Q.5 Discuss marginal embankment with neat sketch; write its design criteria, advantages & disadvantages. **(10)**

OR

Write detailed classification of spur with neat sketches. **(10)**

Q.6 Discuss various measures adopted for reclamation of saline & alkali soil. **(10)**

OR

Discuss tile drains for drainage of water logged land. **(10)**

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