

B.E. Civil Engineering (Model Curriculum) Semester - VIII
OEC-2 - Advanced Hydraulic Structures

P. Pages : 2

Time : Three Hours



GUG/S/23/14337

Max. Marks : 80

- Notes :
1. All questions carry equal marks.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) What are the causes of failure of hydraulic structure on permeable foundation. 6
- b) Explain in detail Bligh's creep theory. 6
- c) What is Retrogression? 4

OR

2. A weir with vertical drop has the following particular 16
 - i) Nature of bed – coarse sand with value of Bligh's C = 12
 - ii) Flood discharge = 250 cumec
 - iii) Length of weir = 3.5 meter
 - iv) Height of weir above low water – 2m
 - v) Height of falling shutter = 0.6m
 - vi) TOP width of weir = 2.0m
 - vii) Bottom width of weir = 3.5m
3. a) What are the spillways? Enumerate the various types of spillways. 8
- b) Compute the discharge over an ogee spillway with $C_d = 2.3$ at a head of 3.8m. The effective length of the spillway is 110m. Neglect the velocity of approach. 4
- c) Explain cavitation. 4

OR

4. a) Write a short note on energy dissipation below spillway. 6
- b) Briefly describe an ogee spillway. 6
- c) What are canal faus? 4
5. a) What is meant by 'Canal Regulation' and what are different canal regulation works. 10
- b) Explain with neat sketch cattle crossing. 6

OR

6. a) Design an irrigation outlet for the following data 8
FSQ of outlet = 50 lit /sec
FSL in distributory on u/s side of outlet = 200m
FSL in water course on D/S side outlet = 199.92m
FSD in distributory on u/s side of outlet = 1.05m
- b) Describe canal escapes with neat sketches. 8
7. a) What are different types of cross drainage works & with neat sketches explain any two in details. 8
- b) What is meant by 'river training' and what are different objective serve by it. 8

OR

8. Write a short note on **any four**. 16
a) Canal wings
b) Fluming of canal
c) Level crossing
d) Groynes
e) Water wings
9. a) Explain in detail Hydraulics of outlet work. 8
- b) What is meant by 'Dam sluice'? Why are such sluices necessary in dam construction. 8

OR

10. Write a short note on **any two**. 16
i) Sluiceways in dams
ii) River intakes.
iii) Transh Racks
