

Code: CE6T3

III B.Tech - II Semester – Regular Examinations – May 2015

**WATER RESOURCES ENGINEERING - II
(CIVIL ENGINEERING)**

Duration: 3 hours

Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

1. a) Sketch the layout of typical diversion headworks and describe briefly the functions of the various components of diversion headworks. 7 M

- b) What is meant by piping on foundation of a weir? Explain Bligh's method of safe guarding the foundation against the ill effects of piping. 7 M

2. a) Explain the terms: 7 M
 - i) Dead storage
 - ii) Useful storage
 - iii) Surcharge storage
 - iv) Bank storage

- b) What are the factors on which the rate of silting of an impounding reservoir depends? What is trap efficiency? 7 M

3. a) What is meant by gravity dam? What are the main points to be considered while selecting a site for a gravity dam construction? 7 M

- b) Explain briefly with neat sketch the different forces that may act on a gravity dam. Indicate their magnitudes, directions and locations. 7 M
4. a) Discuss various causes of failure of earth dams. 7 M
- b) Discuss with neat sketch how top seepage line is drawn in a homogeneous dam without any arrangement for drainage. 7 M
5. a) What are the different types of spillways and how are they selected for individual conditions? 7 M
- b) Discuss briefly the design principles that are involved in the design of an ogee spillway. 7 M
6. a) What are “canal falls” and where are they located? 7 M
- b) Design a 1.5 meters Sarda type fall for a canal having a discharge of 12 cumecs, with the following data: 7 M
- Bed level upstream = 103.0 m
 - Side slopes of channel = 1:1 m
 - Bed level downstream = 101.5 m
 - Fully supply level upstream = 104.5 m
 - Bed width u/s and d/s = 1.0 m
 - Soil = Good Loam
 - Assume Bligh’s coefficient = 6

7. a) What are the functions of a canal head regulator? Draw a typical cross-section of a head regulator, and indicate the various components of the same. 7 M
- b) What are 'outlets'? Enumerate the different types of outlets which are in common use on canal projects. 7 M
8. a) What are the different types of cross drainage works that are necessary on a canal alignment? State briefly the conditions under which each one is used? 7 M
- b) Explain the design principles of super passage. 7 M