

EH-211

**B.E. VII Semester (CGPA)
 Civil Engineering Exam. 2014
 IRRIGATION ENGINEERING**

Paper : CE-705

Time Allowed : Three Hours

Maximum Marks : 60

Note : Answer all the five questions. Internal choice in each question is indicated at appropriate place. Assume any missing data suitably.

- Q.1. a) What are the different types of weirs? Explain with neat sketches. 6
- b) Explain briefly Khosla's exit gradient concept. 6

Or

Discuss the main causes of failure of weirs constructed on previous foundation. Also discuss the important theories which have been put forward for designing such weirs to avoid their failures due to above causes. 12

- Q.2. a) Explain various types of Aqueducts and Siphon-Aqueducts with the help of neat sketches. 6

- b) Explain the term "Cross drainage works" and its utility for hydraulic structures. 6

Or

Design a suitable cross drainage work, give the following data at the crossing of a canal and a drainage. 12

Canal

Full supply discharge	=	30 cumecs
Full supply level	=	R.L. 211.5 m
Canal bed level	=	R.L. 210. m
Canal bed width	=	20 m
Trapezoidal canal section with 1½ H : 1V slopes		
Canal water depth	=	1.5 m

Drainage

High flood discharge	=	300 cumecs
High flood level	=	208 m
High flood depth	=	2.5 m
General ground level	=	210.5 m

- Q.3. a) Describe briefly the techniques that are employed for computing the storage capacity of a reservoir for different water surface elevations. 6
- b) Discuss with a neat sketch the various zones of the dam reservoir. 6

Or

- a) Explain how the storage capacity of a reservoir is fixed. 6

- b) Explain different parameters for the selection of site to construct a dam. 6

Q.4. Explain with the help of necessary sketches about the various forces acting on a gravity dam. Also quantify each force in term of mathematical expressions, as and when applicable.

12

Or

- a) Explain with the help of neat sketches about various types of joints in a gravity dam. 6
- b) Explain different types of galleries used in gravity dam. 6

Q.5. a) "A spillway is a safety valve in a dam". Discuss the statement. 6

- b) What is meant by an energy dissipator? Discuss various methods used for energy dissipation below spillways. 6

Or

- a) What is meant by Hydro-power? Compare Hydro-power with thermal power w.r.t. Indian conditions. 6
- b) Explain the criteria for the selection of turbines in Hydro-power generation. 6

