Date:13/05/2016

Total Marks: 70

GUJARAT TECHNOLOGICAL UNIVERSITY PDDC - SEMESTER-VI. EXAMINATION – SUMMER 2016

Subject Code:X60603

Subject Name: Irrigation Engineering

Time:10:30 AM TO 01:00 PM

Instructions:

1. Attempt all questions.

Khosla's theory.

- 2. Make suitable assumptions wherever necessary.
- 3. Figures to the right indicate full marks.

Q.1	(a)	Define irrigation. Classify various methods of irrigation. Discuss furrow method and basin method of irrigation in brief.	07
	(b)	Describe various causes of failures of weir in permeable foundation with their remedies.	07
Q.2	(a) (b)	Describe various factors affecting duties and methods of improving duties Define the following terms (1) Base period (2) Saturation capacity (3) Gross command area (4) Hygroscopic water (5) Capillary water (6) Kor period (7) Time factor OR	07 07
	(b)	Describe the various forces acting on gravity dam along with their direction of acting.	07
Q.3	(a) (b)	Describe the causes of failure of earthen dam. Explain various modes of failure of gravity dam.	07 07
Q.3	(a)	Draw a neat diagram of diversion head work explaining the function of each component.	07
	(b)	Describe the various causes of water logging and their remedial measures.	07
Q.4	(a) (b)	Give a point wise comparison of Kennedy's silt theory and lacey's silt theory. Design an irrigation channel section for the following data Discharge = 40 cumecs, particle size = 0.8 mm , Side slope $0.5:1 \text{ (H:V)}$ OR	07 07
Q.4	(a)	What are energy dissipation devices? Explain their uses. Explain any two types of energy dissipation devices.	07
	(b)	Define The following terms in context of cross-drainage works. (1) Afflux (2) Water way (3) Aqueduct (4) Siphon (5) Level crossing (6) Super- passage (7) Full supply level	07
Q.5	(a)	What are the different types of cross-drainage works that are necessary on a canal? State the conditions under which each is used.	07
	(b)	Write a brief note on (1) Spillway gates (2) Elementary profile of gravity dam	07
Q.5	(a)	An impervious floor of a weir on permeable foundation is 16m long and has sheet piles at both ends. Upstream pile is 4 m deep and downstream pile is 5 m deep. The weir creates a net head of 2.5 m. Calculate the uplift pressures at the	07

junction of inner faces of pile with weir floor. Neglect floor thickness. Use

(**b**) Write short note on

(1) Seepage control measures in earthen dam (2) Stability analysis of slopes of earthen dam
