Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER–VI EXAMINATION – WINTER 2015

Subject Code:X60603 **Date:12/12/2015**

Subject Name: Irrigation Engineering

Time: 02:30pm to 05:00pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Define irrigation and explain in detail irrigation development in India.	**07**
	(b)	Classify irrigation methods and explain sprinkler irrigation in detail.	**07**
Q.2	**(a)**	Explain the term 'Duty' and 'Delta'. Derive relationship between the two.	**07**
	(b)	A water course has a culturable commanded area of 1000 hectares. The intensity of crop A is 20% and crop B is 40%. Kor period for crop A and crop B is 18 days and 15 days respectively. Kor depth for crop A is 15 cm and for crop B kor depth is 18 cm. Calculate the discharge of the water required.	**07**
		OR	
	(b)	Explain 'Assessment of irrigation water'. Describe any two methods of assessment in detail.	**07**
Q.3	**(a)**	Draw a neat sketch to show components of a diversion headwork and explain each component.	**07**
	(b)	Explain the method of drawing phreatic line for an earth dam with horizontal filter at downstream.	**07**
		OR	
Q.3	**(a)**	Compare Bligh' Creep theory and Lane's Weighted theory.	**07**
	(b)	Give criteria for safe design of earthen dam.	**07**
Q.4	**(a)**	Show forces acting on a gravity dam with neat sketch.	**07**
	(b)	What is a spillway? Explain component parts of a spillway.	**07**
		OR	
Q.4	**(a)**	Describe graphical method of stability analysis of dam.	**07**
	(b)	What is distributary head regulator? Explain its function.	**07**
Q.5	**(a)**	Explain Kennedy's silt theory.	**07**
	(b)	Define canal lining. Explain necessity and advantage of canal lining.	**07**
		OR	
Q.5	**(a)**	What is a canal fall. Enumerate types of canal fall and explain any one type of fall in detail.	**07**
	(b)	Define cross drainage work. Explain types of aqueducts with the help of neat sketches.	**07**

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