Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER – VI EXAMINATION – WINTER 2015

Subject Code:160602 **Date:17/12/ 2015**

Subject Name: Applied Fluid Mechanics

Time:2:30pm to 5:00pm **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)**	What is the importance of most economical section of a channel?	**07**
	(b)	Explain types of flows.	**07**
Q.2	**(a)**	Define: 1) Specific energy. 2) Critical depth. 3) Critical velocity. 4) Alternate depths.	**07**
	(b)	Classify the various types of channels.	**07**
		OR	
	(b)	Describe the velocity distribution in case of natural river.	**07**
Q.3	**(a)**	Define: 1) Displacement thickness. 2) Boundary layer thickness. 3) Laminar sub layer. 4) Laminar boundary layer.	**07**
	(b)	A rectangular channel carries water at the rate of 1000 liters /sec. with bed slop 1 in 2000 find the dimensions of most economical section. Take Manning's coefficient n = 0.015	**07**
		OR	
Q.3	**(a)**	What are the assumptions made in the derivation of dynamic equation of Gradually varied flow?	**07**
	(b)	What are the different methods of prevention of separation of boundary layer?	**07**
Q.4	**(a)**	Define hydraulic jump and discuss the applications of hydraulic jump.	**07**
	(b)	Write short note on Reynold's experiment.	**07**
		OR	
Q.4	**(a)**	What is meant by boundary layer? Why does it increases with distance from the upstream edge?	**07**
	(b)	Discuss drag on a circular cylinder with all possible flow conditions with sketch	**07**
Q.5	**(a)**	Define: 1) Suction head. 2) Delivery head. 3) Static head. 4) Manometric head.	**07**
	(b)	Differentiate between impulse turbine and reaction turbine	**07**
		OR	
Q.5	**(a)**	What is meant by geometric, kinematic and dynamic similarities?	**07**
	(b)	Define: 1) Total drag on a body. 2) Coefficient of drag. 3) Coefficient of lift.	**07**

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