Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. IST Semester–Remedial Examination – July- 2011

Subject code: 711205 N

Subject Name: Hydro Power Engineering

Date:12/07/2011 **Time: 10:30 am – 01:00 pm**

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)**	Explain different Energy sources and explain any one non conventional energy sources in detail	**07**
	(b)	Draw a typical layout of low head hydropower development scheme Canal &explain the function of each element	**07**
Q.2	**(a)**	What is the Hydro electric plant? Classified & discuss any one.	**07**
	(b)	Explain following terms: (i) Trash Rack (ii) Pondage Factor (iii) Air Vent	**07**
		OR	
	(b)	A power canal having bed width 15m of rectangular shape, with assuming a steady state depth of flow of 3m and having discharge of 30 sum/s to three turbine. Calculate height of surge tank in the canal if the load in the plant is suddenly thrown off, so that two is to be shut down.	**07**
Q.3	**(a)**	Enlist different types of turbines and explain any one in detail	**07**
	(b)	Explain water hammer and mention the equation to find out pipe thickness	**07**
		OR	
Q.3	**(a)**	Explain Low Medium and High head Power Plants	**07**
	(b)	Explain following terms : (i) load Factor (ii) Capacity factor (iii) Firm Capacity	**07**
Q.4	**(a)**	What is surge? Explain surge tank	**07**
	(b)	Explain Anchor block with sketch in penstock	**07**
		OR	
Q.4	**(a)**	Merits &demerits of hydro electric power generations over thermal electric power generations.	**07**
	(b)	Write short notes on Drafts tube & its types	**07**
Q.5	**(a)**	Discuss the design criteria for Penstock	**07**
	(b)	Explain Francis Turbine	**07**
		OR	
Q.5	**(a)**	Explain Elastic Column Theory of Water Hammer Describe different types of Penstock	**07**
	(b)	Explain the design parameter of turbine	**07**

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