Sea	at No.:	Enrolment No	
		GUJARAT TECHNOLOGICAL UNIVERSITY ME – SEMESTER I (NEW) – • EXAMINATION – SUMMER 2016	
Su	bject	Code: 2713305 Date: 19/05/20	16
Tiı	•	Name: HYDROPOWER ENGINEERING 2:30 pm to 05:00 pm Total Marks:	70
Inst	1.	Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
Q.1	(a)	Enumerate the different type of hydel plant and describe the pumped storage hydal plant.	07
	(b)	What are the principal components of the hydroelectric scheme? Discuss the utility of each component.	07
Q.2	(a)	Differentiate between the following in connection of hydropower, (i) Firm power and secondary power (ii) Load factor and plant factor (iii)Design head and operating head (iv)Power factor and demand factor	07
	(b)	Write short notes on hydropower potential of India.	07
		OR	
	(b)	Write short notes on velocity turbine and pressure turbine	07
Q.3	(a)	Classify turbines according to specific speed and explain how particular type of turbine is selected.	07
	(b)	Define specific speed of the turbine . Derive an expression of specific speed	07
		OR	
Q.3	(a)	A turbine is to operate under a head of 25 metres at 200 rpm. The discharge is 10 cumec. If the efficiency is 90% determine, (i)Specific speed of the machine (ii)Power generated (iii)Type of turbine (iv)Performance under a head of 20 metres	07
	(b)	Explain main and operating characteristics curves of the turbine.	07
Q.4	(a)	What is draft tube? Explain different types of draft tubes.	07
	(b)	Define penstock. Write design criteria of penstocks	07

Q.4 (a) What is power canal? Write design criteria of power canal.(b) What are different types of intake structures of hydropower plant .Explain

each intake in brief.

OR

07

07

Q.5	(a)	Define water hammer pressure. Explain behavior of surge tanks.	07
	(b)	How do you assess the water potential of hydroelectric scheme.	07
		OR	
Q.5	(a)	Write short notes on surge tank of hydropower plant.	07
	(b)	Write short notes on governing of turbine.	07
