Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma Engineering - SEMESTER–III • EXAMINATION – WINTER • 2014

Subject Code: 3330503 **Date: 29-11-2014**

Subject Name: Fluid Flow Operation

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.**
4. **English version is considered to be Authentic.**

Q.1		Answer any seven out of ten.	**14**
	1.	Define Ideal fluid and Real fluid.	
	2.	Define Gauge pressure and Absolute pressure.	
	3.	Define Manometer and vacuum.	
	4.	Define mass velocity.	
	5.	Give continuity equation describing all the nomenclature.	
	6.	Explain cavitation.	
	7.	Explain Porosity of fluidized bed.	
	8.	Give Hagen-Poiseuille's equation.	
	9.	Define Absolute and Kinematic viscosity.	
	10.	Define hydraulic radius and equivalent diameter.	
Q.2	(a)	Differentiate between skin friction and form friction.	**03**
		OR	
	(a)	Draw neat sketch of friction factor chart.	**03**
	(b)	Differentiate between compressible and incompressible fluids.	**03**
		OR	
	(b)	Draw neat sketch of Simple U tube manometer.	**03**
	(c)	Explain Friction loss in fittings and valves.	**04**
		OR	
	(c)	Differentiate between Pneumatic conveying and Hydraulic conveying.	**04**
	(d)	Give industrial application of conveying.	**04**
		OR	
	(d)	Give industrial application of fluidization.	**04**
Q.3	(a)	Give assumptions made in Bernoulli's equation.	**03**
		OR	
	(a)	Write equation of inclined manometer describing all the nomenclature.	**03**
	(b)	A differential U tube manometer is filled with carbon tetrachloride and water, sp. Gravity 1.6 and 1 respectively. If the liquid above water is kerosene, sp. Gravity 0.8, and manometer reads 7.6 cm, find the pressure drop.	**03**
		OR	
	(b)	Differentiate between Compressor, Fan and Blower.	**03**
	(c)	Give classification of pumps.	**04**
		OR	
	(c)	Differentiate between pipe and tube (any four points).	**04**
	(d)	Draw neat sketch of gate valve.	**04**
		OR	
	(d)	Draw neat sketch of any four fittings.	**04**
Q.4	(a)	Write of equation of flow rate through Orifice meter describing all the	**03**

nomenclature.

OR

	(a)	Write of equation of flow rate through V-notch describing all the nomenclature.	**03**
	(b)	Draw neat sketch of pitot tube.	**04**
		OR	
	(b)	Draw neat sketch of rotameter.	**04**
	(c)	Describe construction and working of centrifugal pump with neat figure.	**07**
Q.5	(a)	Give classification of flow measuring devices.	**04**
	(b)	Explain boundary layer.	**04**
	(c)	Classify flow based on Reynold's number.	**03**
	(d)	Give names of different types of fluids with examples.	**03**

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