Seat No.:	Enrolment No.

## **GUJARAT TECHNOLOGICAL UNIVERSITY**

BE – SEMESTER – VI (OLD).EXAMINATION – WINTER 2016

	U	ect Code: 160302 Date: 26/10/2016	
	Time	ect Name: Analytical & Optical Instrumentation : 02:30 AM to 05:00 PM Total Marks: 70	
	Instruc	1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks.	
Q.1	(a)	Enlist the general characteristics of Analytical and Optical techniques on priority basis. Define generalized approach towards achieving those characteristics.	07
	<b>(b)</b>	Draw and explain the Electromagnetic Spectrum with sources and applications of each band.	07
Q.2	(a)	Explain various types of optical filters used in spectrophotometry.	07
	<b>(b)</b>	Explain various types of microscopes and their applications.  OR	07
	<b>(b)</b>	Enlist limitations of coulter counter. Which method would you suggest to overcome this limitations?	07
Q.3	(a)	Describe flame photometry and its uses.	07
	<b>(b)</b>	Write a brief note on polymeric Chain Reaction.	07
0.1	(.)	OR	05
Q.3	(a) (b)	Write a brief note on HPLC.  Explain the design of mass spectrometry.	07 07
Q.4		Write a brief note on Endoscopy.  Draw and explain calomel electrode in detail.	07 07
	<b>(b)</b>	OR	U/
Q.4	(a)	Enlist the advantages of autoclave over hot air oven.	07
	<b>(b)</b>	Explain the instrument and process used for serum albumin test.	07
Q.5	(a)	Enlist and briefly explain the types of Electrophoresis.	07
	<b>(b)</b>	State and explain the beer – Lambert's law and its applications.	07
		OR	
Q.5		List the equipment used for in-vivo measurement. Explain any two in detail.	07
	<b>(b)</b>	Explain the construction of pH electrode in detail.	07

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