Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI • EXAMINATION – SUMMER 2013

Subject Code: 160302 **Date: 27-05-2013**

Subject Name: Analytical and Optical Instrumentation

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)**	Draw and explain block diagram of flame photo meter.	**07**
	(b)	What is microscopy? Explain detailed construction of dark ground microscope.	**07**
Q.2	**(a)**	Define chromatography. Explain the principle used in gas chromatography.	**07**
	(b)	What is centrifugal force? Describe the application of it.	**07**
		OR	
	(b)	Explain blood PCo2 measurement.	**07**
Q.3	**(a)**	Explain coulter counter method for blood cell counting.	**07**
	(b)	Give a brief description of Spectrophotometer with a neat Block Diagram.	**07**
		OR	
Q.3	**(a)**	Explain Semi Auto analyzer. What is the difference between Semi Auto Analyzer and Auto analyzer?	**07**
	(b)	Explain electrophoresis apparatus.	**07**
Q.4	**(a)**	Explain pulse oximetry technique in detail.	**07**
	(b)	Explain different types of Atomizers.	**07**
		OR	
Q.4	**(a)**	What is the need of blood gas measurements? Explain the fiber optic based blood gas sensor.	**07**
	(b)	Explain the basic principle of liquid chromatography and enlist the types of liquid chromatography.	**07**
Q.5	**(a)**	Explain the construction of picoscale blood cell counter and describe the merits above coulter counter.	**07**
	(b)	Explain Elisa reader.	**07**
		OR	
Q.5	**(a)**	Explain pH meter in detail.	**07**
	(b)	Explain single beam and double beam Densitometer with neat diagrams.	**07**

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