

GUJARAT TECHNOLOGICAL UNIVERSITY**B E Sem-VI Examination May 2011****Subject code: 160302****Subject Name: Analytical & Optical Instrumentation****Date: 17/05/2011****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 the principle of Flame photometry & give a brief description of clinical Flame photometer. **07**
 (b) Describe the components used in fuel gas regulation. **04**
 (c) Write the optical properties of a light filter. **03**

- Q.2** (a) Explain the basic principle of liquid chromatography & enlist the types of liquid chromatography. **07**
 (b) Explain different types of Atomizers. **07**

OR

- (b) Explain single beam & double beam Densitometer with neat diagrams. **07**

- Q.3** (a) Give a brief description of Spectrophotometer with a neat Block Diagram. **09**
 (b) Explain laws relating to Absorption of radiation. **05**

OR

- Q.3** (a) Explain Endoscopy with a neat diagram. **09**
 (b) Explain any two types of monochromators. **05**

- Q.4** (a) Give a brief explanation of Glass electrode with proper diagram. **06**
 (b) Describe the working of Auto analyzer. **04**
 (c) Explain instrumentation of Incubator. **04**

OR

- Q.4** (a) Describe the Blood PO₂ measurement with construction details of electrode. **06**
 (b) Briefly explain Autoclaves. **04**
 (c) Describe the instrumentation of Dark Field Microscopy. **04**

- Q.5** (a) Describe the First principle of Electrophoresis & explain the various Electrophoresis techniques. **07**
 (b) Explain the construction of picoscale blood cell counter & describe the merits above coulter counter. **07**

OR

- Q.5** (a) Describe the performance parameters of pulse oximeter. **07**
 (b) Write a short note. (Any one) **07**
 1. Scanning Electron Microscopy
 2. Blood Glucose Measurement
