

Seat No.: _____
No. _____

Enrolment

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VI • EXAMINATION – WINTER • 2014

Subject Code: 160302

Date: 28-11-2014

Subject Name: Analytical and Optical Instrumentation

Time: 02:30 pm - 05:00 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 various types of radiation sources used in spectrophotometry. **07**
(b) Draw and explain the proximal and distal tip of the endoscope. **07**
- Q.2** (a) Explain the techniques used in glucose measurement. **07**
(b) Briefly describe flame photometer with its block diagram. **07**
- OR**
- (b) Give difference between monochromators & optical filters with applications. **07**
- Q.3** (a) Explain the technique used for blood pCO₂ measurement. **07**
(b) Briefly explain the methodology of Gel Electrophoresis. **07**
- OR**
- Q.3** (a) Explain the beer – Lambert’s law with necessary equations. **07**
(b) What is Phase contrast microscopy? Describe the design components of phase contrast microscope. **07**
- Q.4** (a) Briefly explain the methodology of HPLC. **07**
(b) Explain the design of mass spectrometer. **07**
- OR**
- Q.4** (a) Explain the design aspects of Incubators. **07**
(b) Describe the electrode used for pH measurement with neat sketch. **07**
- Q.5** (a) Write a brief note on coulter counter. **07**
(b) Explain the fundamental principal of centrifugal force. Describe the instrumentation of centrifuge. **07**
- OR**
- Q.5** (a) Write a brief note on polymeric Chain Reaction. **07**
(b) What is autoclave? How is it differing from hot air oven? **07**
