

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI • EXAMINATION – SUMMER • 2015****Subject code: 160301****Date: 01/05/2015****Subject Name: Diagnostic Instrumentation****Time: 10.30AM-01.00PM****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) Briefly describe the generations of CT machines. **07**
(b) Draw and explain the graphs of blood pressure. **07**
- Q.2** (a) Describe the principle of ultrasonic Doppler-shift flow velocity meter for blood flow measurement. **07**
(b) Describe the water sealed spirometer with a neat sketch. **07**
- OR**
- (b) Derive the mathematical equations for ultrasonic spirometer. **07**
- Q.3** (a) Explain principles of NMR imaging systems. **07**
(b) Write a short note on collimators and grids. **07**
- OR**
- Q.3** (a) Explain rotating anode X-ray tube with neat diagram. **07**
(b) Enlist the applications of X-ray in dentistry and memography. **07**
- Q.4** (a) Describe the instrumentation of refractometry. **07**
(b) Draw and explain the block diagram of PCG instrumentation. **07**
- OR**
- Q.4** (a) Draw and explain the block diagram of EEG instrumentation. **07**
Q.4 (b) Give a brief explanation on M-mode of ultrasonic imaging. **07**
- Q.5** (a) Write a short note on Direct measurement of blood pressure monitoring. **07**
(b) Describe the instrumentation of Bronchoscopy and Laryngioscopy. **07**
- OR**
- Q.5** (a) Explain the method of cholecptography. **07**
(b) Describe the instrumentation of Colonoscopy and Sigmoidoscopy. **07**
