

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VI (OLD) - EXAMINATION – SUMMER 2018****Subject Code:160301****Date:05/05/2018****Subject Name:Diagnostic Instrumentation****Time:10:30 AM to 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 functional block diagram of Electrocardiogram. **07**  
(b) Draw schematic circuit diagram of 12 leads in ECG system. Derive their inter-relationship. **07**
- Q.2** (a) Explain working principle of MRI and types of gradients coils used in MRI. **07**  
(b) Describe the water sealed spirometer with a neat sketch. **07**
- OR**
- (b) Define all the different volumetric and capacity measures used in spirometry? **07**
- Q.3** (a) Explain the block diagram of audiometer system Bekesy. **07**  
(b) Explain different generations of CT scan. **07**
- OR**
- Q.3** (a) Describe measurement principal of PET scan. **07**  
(b) Write a detailed note on capsule endoscopy. **07**
- Q.4** (a) Explain M mode of Ultrasound with necessary Block Diagram **07**  
(b) Enlist Different techniques for BP measurement & explain any one method for Direct BP measurement. **07**
- OR**
- Q.4** (a) Explain echocardiograph with its application. **07**  
(b) Write a short note on Image Intensifier used In X-Ray Machine. **07**
- Q.5** (a) Explain principal, working and application of Tonometer. **07**  
(b) Explain Ultrasonic Doppler-shift based Fetal Heart Rate measurement. **07**
- OR**
- Q.5** (a) Enlist applications of Biotelemetry and explain any one in detail. **07**  
(b) Draw & explain schematic of rotating anode type x-ray tube. **07**

\*\*\*\*\*