

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII (OLD) EXAMINATION – SUMMER 2019****Subject Code: 180302****Date: 13/05/2019****Subject Name: Advance Medical Techniques****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) Define heart rate variability. Explain the technique to measure heart rate variability. **07**
(b) Explain thermal interaction between LASERs and Tissue. **07**
- Q.2** (a) Write a note on interaction of LASER beam and materials. **07**
(b) Discuss different standards of compression and communication of biomedical images. **07**
- OR**
- (b) Explain in detail CT image reconstruction technique. Describe back projection and filtered back projection methods. **07**
- Q.3** (a) Explain in detail light transmission through optical fibres. **07**
(b) Discuss in detail principle of endoscopic imaging system. Draw necessary diagrams. **07**
- OR**
- Q.3** (a) Discuss optical properties of optical fibres. **07**
(b) Describe the application of LASERs in diagnostic techniques. **07**
- Q.4** (a) State and explain the principle of direct and indirect fibre optic sensors. **07**
(b) What are Aneurysm? Explain techniques for Aneurysm treatment. **07**
- OR**
- Q.4** (a) Give examples of fibre optic biomedical sensors. Explain in detail principle of any one sensor. **07**
(b) Explain in detail Angioplasty technique. **07**
- Q.5** (a) Explain basic principle of Hyperbaric Oxygen Therapy. **07**
(b) Explain clinical applications of fibre optic LASER system in general and thoracic surgery. **07**
- OR**
- Q.5** (a) Write a note on Image Guided Thermal Therapy. **07**
(b) Explain clinical applications of fibre optic LASER system in Ophthalmology. **07**
