

P. P. SAVANI UNIVERSITY  
Second Semester of B.P.T. Examination  
ESE Backlog of Biomedical Physics

Course Code: SPPT1110

Time: 1 hour 30mins

Maximum Marks: 35

*Instructions:*

1. The question paper comprise of one section.
2. Make suitable assumptions and draw neat figures wherever required.

**Question 1(Essay Question –Any one)**

**(10\*1=10 Marks)**

- a. Derive the expression for Numerical aperture and acceptance angle with proper diagram.  
OR
- b. Explain construction and working of Nd:YAG LASER

**Question 2(Short Notes – Any Two)**

**(2\*5=10 Marks)**

- a. Explain the construction and working of piezoelectric method to produce ultrasonic wave with neat circuit diagram.
- b. Explain the working of step up and step down transformer with proper diagram.
- c. Write a short note on friction.

**Question3 (Very Short Notes-Any Five)**

**(3\*5=15Marks)**

- a. What are the differences between conductors, semiconductor and insulators?
- b. Explain Faradays law of Electromagnetic induction.
- c. Explain the working of SONAR.
- d. Definition mechanical advantage, velocity ratio and efficiency.
- e. Define a) force b) total internal reflection c) simple machine
- f. Explain the construction of optical fibre