



Register Number:  
Date:

**ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE-27**  
**B.A/B.Sc - IV SEMESTER**  
**SEMESTER EXAMINATION: APRIL 2020.**  
**PHOE 4218: MEDICAL PHYSICS**

**Time: 1.5 hours**

**Max Marks: 35**

This paper contains two printed pages and four parts

**PART A**

(5x 1=5)

**Answer all the following questions**

1. Five large square on an Electrocardiogram (ECG) is equivalent to  
a) 5 seconds b) 2 seconds c) 1 second d) 10 seconds
2. Which light is used for psoriasis treatment?  
a) Blue light b) UV light c) Green light d) IR light
3. What type of laser is used for Lasik?  
a) X ray laser b) IR laser c) UV laser d) Excimer laser.
4. Outward Curvature of Spinal cord named as  
a) Lordosis b) Kyphosis c) Scoliosis d) Monosis
5. When should you give rescue breathing  
a) Conscious choking victim b) Unconscious choking victim c) Unconscious, no pulse, not breathing. d) Unconscious, no pulse, has breathing.

**PART B**

**Answer any FIVE of the following questions. Each question carries two marks (5 x 2=10)**

6. How does gravity affect the body?
7. What are IGRT and IMRT?
8. Can lack of sleep cause high blood pressure? Give the reason
9. Define A-Scan display in Ultrasonic.
10. What are the characteristics of Laser light?
11. What is radiation therapy? Briefly explain
12. What is the most important part of a stethoscope? Explain its importance.

### PART C

Answer any TWO of the following questions. Each question carries Five marks (2 x5 =10)

13.

Density (kg/m <sup>3</sup> )	Speed of Ultrasound (m/s)	Acoustic Impedance (kg/(m <sup>2</sup> · s))
Fat	925	1450
Muscle (average)	1075	1590

- a) Using the values for density and the speed of ultrasound in the given above, find the acoustic impedance of fat tissue.
  - b) Calculate the intensity reflection coefficient of ultrasound when going from fat to muscle tissue.
14. How many levers are there in human body? Explain each with an example.
15. Draw a suitable diagram and explain the production of X-rays. Mention its medical applications

### PART D

(1x10=10)

16. Explain about an Electrocardiogram (E.C.G) in terms of, rhythm, waves, and leads.