

**B.Sc. MEDICAL LABORATORY TECHNOLOGY**  
**FIRST YEAR**  
**PAPER IV – PHYSICS AND PRINCIPLES OF INSTRUMENTATION**

*Q.P. Code : 725004*

**Time : Three Hours**

**Maximum : 100 Marks**

**Answer ALL questions.**

**I. Elaborate on:**

**(3 x 10 = 30)**

1. Explain in detail about the construction and working of Electron Microscope.
2. What are radio isotopes and list out the isotopes used in medical field and mention its therapeutic importance.
3. Draw a neat sketch of a refrigerator and explain in detail about its working.

**II. Write Notes on:**

**(8 x 5 = 40)**

1. Draw the neat diagram of physical balance and write a note on its sensitivity.
2. Write short notes on centripetal and centrifugal forces with examples.
3. What is a thermostat? And explain its principle.
4. Write short notes on spherical and chromatic aberrations.
5. What is the basic principle of a spectrometer? Explain its role in the optics field.
6. Draw a neat sketch of a simple microscope and explain its working.
7. Write short notes on electrolytes which are used in the medical field.
8. Obtain an expression for the radioactive decay constant.

**III. Short Answers on:**

**(10 x 3 = 30)**

1. Define mass and volume and write the units.
2. What is Ph meter and write its use?
3. State the I law of thermodynamics.
4. Define heat and write its unit.
5. What is an incubator?
6. What is ultrasound?
7. Define wavelength and frequency.
8. What is distillation?
9. State Ohm's law.
10. What is radioactivity?

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