

**2403001303044001**  
**EXAMINATION NOVEMBER 2024**  
**BACHELOR OF SCIENCE (BIO TECHNOLOGY) (MASTER OF**  
**SCIENCE (BIO TECHNOLOGY) 5 YEAR INTEGRATED**  
**COURSE) (NCF-NEP) (THIRD SEMESTER)**  
**MDC-BIOPHYSICS - LEVEL 4**

[Time: As Per Schedule]

[Max. Marks: 50]

**Instructions:**

**1. Fill up strictly the following details on your answer book**

- a. Name of the Examination: **BACHELOR OF SCIENCE (BIO TECHNOLOGY) (MASTER OF SCIENCE (BIO TECHNOLOGY) 5 YEAR INTEGRATED COURSE) (NCF-NEP) (THIRD SEMESTER)**
- b. Name of the Subject: **MDC-BIOPHYSICS - LEVEL 4**
- c. Subject Code No: **2403001303044001**

2. Sketch neat and labelled diagram wherever necessary.
3. Figures to the right indicate full marks of the question.
4. All questions are compulsory.

Seat No:

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Student's Signature

**Q.1 Answers in short (any 10 out of 12)**

**10**

- a) Write Units of Radioactivity
- b) Radioactive decay in which the neutron gets converted into proton is known as?
- c) Define atomic number and atomic mass.
- d) Define is diffraction of light.
- e) What is Optical rotation?
- f) What is Snell's Law?
- g) What is Exposure time and gain factor?
- h) Define beam of light.
- i) Give equation for Stokes law.
- j) Define Laminar Flow.
- k) If the total magnification of microscope is 1000X, and the objective used is 50x, find the magnification of eyepiece.
- l) What is Non-Newtonian fluid?

**Q.2 Answer in brief (Any 2 out of 3) 10**

- a) Which instrument is used to visualize radioactive particles. Explain its Construction and working.
- b) Explain Construction and working of Geiger Muller Counter.
- c) How radioactive elements were used in Okazaki Experiment?

**Q.3 Answer in brief (any 2 out of 3) 10**

- a) What is Optical rotation? How will you study optically active Compounds?
- b) Explain with diagram i) Myopia ii) Hyperopia iii) Astigmatism. How will you Solve them?
- c) Draw ONLY Schematic diagram of Phase contrast microscope and DIC microscope.

**Q.4 Answers in brief (any 2 out of 3) 10**

- a) Explain working of CCD (Charge Couple Device)
- b) Explain drawbacks of fluorescence microscope? Explain how these drawbacks are solved by using confocal microscope.
- c) What are optical tweezers? Explain how they are used for the measurement of molecular force.

**Q.5 Answers in brief (any 2 out of 3) 10**

- a) Write difference between Newtonian and Non-Newtonian fluids.
- b) Explain terminal velocity. How will you apply concept of terminal velocity in biology?
- c) Give details of fluid flow in plants.

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