

Total No. of Printed Pages:02

SUBJECT CODE NO: - BNP - 2683
FACULTY OF SCIENCE AND TECHNOLOGY
B.Sc. (NEP) (P-2024) S.Y Sem III
Examination November / December 2025
Physics (Modern Physics)

[Time: 1:00 Hours]**[Max. Marks:30]**

Please check whether you have got the right question paper.

N. B

1. Question No.1 is multiple choice objective type & it is compulsory. It carries 10 marks.
2. Attempt any four questions from Q. No.2 to Q. No. 7. Each of these questions carries 5 marks.
3. Figures to the right indicate full marks.

Given: - Planck's constant- $h=6.62 \times 10^{-34}$ J.S
 velocity of light- $c=3 \times 10^8$ m/s

Part A**Q1 Attempt all MCQS****10**

- 1) e/m of photoelectrons was determined by
 - a) Einstein
 - b) Hertz
 - c) Hallwachs
 - d) Lenard
- 2) working of which of the following device is based on secondary emission of electrons?
 - a) photo emissive cell
 - b) photovoltaic cell
 - c) photo conductive cell
 - d) photomultiplier
- 3) Laue's Experiment prove that,
 - a) x-rays are electromagnetic waves
 - b) x-rays are allowed to pass through the crystal
 - c) An arrangement of atoms in the crystal is in a regular 3DLattice
 - d) All of these
- 4) The minimum wavelength of x-rays is an x-ray tube depends on:
 - a) Target material
 - b) Tube current
 - c) Accelerating voltage
 - d) collimator width
- 5) During Population inversion, which of the following processes is dominant?
 - a) stimulated absorption
 - b) stimulated emission
 - c) spontaneous emission
 - d) spontaneous absorption

Part B

- Q2** Describe the construction & working of Richardson & Compton Experiment with neat diagram. **05**
- Q3** Define photo electric effect. Discuss different types of photoelectric cell. **05**
- Q4** Explain Bragg's x-ray spectrometer in detail. **05**
- Q5** An x-ray tube works on 80,000v. What will be the wavelength of X-ray emitted in it. **05**
- Q6** Explain construction & working of He- Ve Laser. **05**
- Q7** Discuss the Medical & Industrial applications of Laser. **05**

