1128
B.Sc. (Hons.) Bio-Informatics
First Semester
BIN-1008: Physics

Time allowed: 3 Hours   **Max. Marks: 60**

NOTE: Attempt <u>five</u> questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

<center>x-x-x</center>

I.   Answer the following:-

    a) Define current and Gives units.

    b) Derive ohm's law in vector form.

    c) What is Interference of waves?

    d) What is polarization?

    e) Write a brief note on Existence of electron in nucleus and atom.

    f) What are half-life and mean-life?   (6x2)

UNIT – I

II.   a) State Coulomb's law. Find electric field due to a point charge and electric dipole for equator line.

    b) Write a brief note on Science and write the units of measurements and ranges for length, temperatures, mass, and luminosity.   (7,5)

III. a) Derive Gauss's theorem and find electric flux for sheet of charge.

    b) What is electric potential? Find the electric potential due to a point charge and dipole.   (6,6)

IV.   a) What is capacitance? Find the capacitance when capacitors are connected in series and parallel arrangement.

    b) Derive the equation of continuity.   (8,4)

UNIT – II

V.   a) What are coherent sources? Explain the Young's experiment.

    b) Write a brief note on Diffraction of light and discuss rectilinear propagation. (6,6)

<div align="right">P.T.O.</div>

VI. a) Write the resolving power of telescope and microscope.

b) Explain with diagram the construction of Compound Microscope and also gives ray diagram and formula for magnifying power. (4,8)

VII. a) State Uncertainty Principle and use its application for particle in a box.

b) Write a note on Radioactivity and its laws and also briefly gives its uses. (6,6)

x-x-x