S. B. Roll. No.....

APPLIED PHYSICS-II
2nd Exam/Common/2753/Nov'24
(For 2018 batch onwards)

Duration: 3Hrs. **M.Marks:75**

SECTION-A

Q1. a) Fill in the blanks. **15x1=15**

i. Light is a _____wave.
ii. Relative permittivity of air is_____
iii. Reflectors used in solar cookers are _____mirrors.
iv. _____are majority carriers in p-type semiconductor.
v. A _____is a non-conducting material which separates the plates of a capacitor.

b) State True or False.

vi. In a microscope, focal length of objective lens is greater than eye-piece.
vii. Total internal reflection (TIR) is used in optical fibers.
viii. No. of diodes used in bridge rectifier is 3.
ix. Reciprocal of resistance is called conductance.
x. Iron is a ferromagnetic material.

c) Multiple choice questions

xi. Electric lines of force about a negative point charge are
a) Circular, clockwise b) Circular, anticlockwise c) Radial inward d) Radial outward
xii. Fleming' s left hand rule is applied to find the direction of
a) Magnetic field b) Magnetic force c) Electric field d) current
xiii. Laser is based on the principle of
a) Total internal reflection b) Refraction c) Population inversion d) Spontaneous emission
xiv. Two resistances of 9 Ω and 18 Ω are connected in series. Equivalent resistance is
a) 20 Ω b) 27 Ω c) 9 Ω d) 2 Ω
xv. The velocity of sound is maximum in a) Air b) Vacuum c) Steel d) Water

SECTION-B

Q2. Attempt any six questions. **6x5=30**

a. Write five properties of electric lines of force.
b. Differentiate between transverse and longitudinal waves.
c. Write down the Faraday's law of electromagnetic induction.
d. The radius of earth is 6400 km. What is its capacitance?
e. Differentiate between Intrinsic and extrinsic semiconductor. Give five differences.
f. An object is placed at 35 cm from a concave mirror of focal length 70 cm. Determine the position and nature of image formed.
g. Discuss different charge distributions.
h. Explain the characteristics and types of laser light.
i. An incandescent lamp draws a current of 0.3 A at 240 volts. Find the resistance of lamp.

SECTION-C

Attempt any three questions. **3x10=30**

Q3. State and prove Gauss law in electrostatics.
Q4. What is wheat stone bridge? Derive the condition for balanced wheat stone bridge.
Q5. a) Find equivalent resistance when three resistances are connected in series.
b) State and explain Kirchhoff's law.
Q6. Derive lens formula for thin convex lens in case of real image.
Q7. a) Differentiate between E.M.F. and Potential difference.
b) Define free, forced and resonant vibrations with examples.