

S.B. Roll No.....

APPLIED PHYSICS-II
2nd Exam/Common/2154/Nov'18

Duration: 3Hrs.

M.Marks:75

SECTION-A

Q1. Do as directed.

10x1.5=15

- a. Reflectors used in solar cookers are _____ mirrors.
- b. A _____ is a non-conducting material which separates the plates of a capacitor.
- c. Slide Wire Bridge is an application of _____.
- d. A magnetic field exerts no force on _____ charge.
- e. _____ are the majority carriers in P-type semiconductor.
- f. Metals can be used as dielectric in capacitor.
- g. Reciprocal of resistance is called conductance.
- h. Post office box works on principle of wheat stone bridge.
- i. Iron is a ferromagnetic material.
- j. Depletion layer of PN junction contains electrons only.

SECTION-B

Q2. Attempt any six questions.

6x5=30

- i. What is meant by power of a lens? Give units of power of a lens.
- ii. An astronomical telescope of magnifying power 12 is adjusted to normal position. The focal length of the objective lens is 1.08 metre. Calculate the length of eyepiece.
- iii. Differentiate between EMF and potential difference.
- iv. If length and area of cross-section of a conductor are doubled, find the net resistance of conductor.
- v. Find the expression for capacity of a parallel plate capacitor.
- vi. Give some properties of electric lines of force.
- vii. How will you differentiate between insulators, good conductors and semiconductors on the basis of band theory of solids?
- viii. What is optical fiber? Write down a short note on optical fiber communication.
- ix. A galvanometer of resistance 100 ohm gives full scale deflection when a current of 1mA is passed through it. Find the value of shunt resistance needed to convert this galvanometer into an ammeter of range 10 A.

SECTION-C

Attempt any three questions.

3x10=30

- Q3.** a) What is Simple Microscope? Find expression for its magnifying power.
b) Refractive index of glass is 1.5. If the speed of light in vacuum is 3×10^8 m/s, then find the speed of light in glass.
- Q4.** a) Derive an expression for electric field intensity due to infinite plane charged sheet.
b) Discuss different charge distributions.
- Q5.** a) Find equivalent resistance when three resistances are connected in series.
b) State and explain Kirchhoff's laws for DC circuit.
- Q6.** a) Explain how a galvanometer can be converted into a voltmeter of given range?
b) Find the force acting on an electron moving with velocity 10^7 m/s in magnetic field of 10^{-4} tesla perpendicular to it.
- Q7.** a) Give some properties of Laser light.
b) Differentiate between N-type and P-type semiconductors.