150

Serial.No:

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RETEST/2019/MJ

APPLIED PHYSICS-II

SC-204

Full marks : (Part A=25+Part B=45)=70

Time : 3 hrs.

[The figures in the margin indicate full marks for the question]

PART -A

MARKS-25

1. Fill up the blank with appropriate words- 1x10=10

i) A small bulb is placed at the focal point of a convex lens. When the bulb is switch on, the lens produces ---------- .

ii) Vacuum tubes are based upon the principle of ---------.

iii) When a glass rod is rubbed with silk, glass developed ---- charge.

iv) The depolarizer in Denial cell is ---------- .

v) Electrical conductivity is the ------- of resistivity.

vi) The kinetic energy of photo -electrons emitted depends upon the ------ of incident light.

vii) Magnetic moment is equal to product of---------- and magnetic length.

viii) An electric potential is ----------quantity.

ix) P-type germanium is obtained by doping pure germanium with element like ----------.

x) The Two Parallel conductors carrying current flowing in

the same direction -------- each other..

2. Choose the correct answer of the following: 15x1 =15

a) In open circuit, the e.m.f. of a cell is

i) equal to P.D. between its two poles.

ii) more than the P.D. between the two poles.

iii) less than the P.D. between two poles.

iv) None of these.

2.b) The commercial unit of electric energy is

i) Joule ii) watt iii) Kilowatt-hour iv) Volt

c) The photo electric effect prove that

i) Velocity of light is constant

ii) light is quantum

iii) light waves are electromagnetic waves.

iv) light waves are transverse in nature

d) Lenz's law helps us to know

i) The force exerted on a coil

ii) The direction of induced e.m.f.

iii) The motion of the magnet through the coil.

iv) Whether the current is A.C or D.C.

e) The angle between the magnetic meridian and the geographic meridian is know as

i) magnetic dip ii) magnetic declination

iii) magnetic moment iv) magnetic field strength.

f) When a current is passed through a thermo-couple, heat is absorbed at one junction and evolved at the others junction.

This is called :

(i) Seebeck effect ii) Joule's effect

iii)Peltier effect iv) Thomson effect

g) Colour of a light is determined by

i) Velocity in air ii) amplitude iii) frequency iv) wavelength

h) An optical fibre is based on the principle of

i) refraction of light ii)total internal reflection

iii) dispertion of light iv) none of the above

i) The particle which cannot be deflected by a magnetic field is

i) proton ii) electron iii) sodium ion iv) neutron

j) The focal length of a convex lens is 20cm. Its power is

i) +5D ii) -5D iii) +.0005D iv) -0.05D

3. Write TRUE/ FALSE :

i) Alpha particle has greater ionizing power.

ii) Two field lines cannot intersect each other

iii) Fleming left hand rule give the direction of force acting on a charge moving in a magnetic field .

iv) Tesla is the unit of electric field intensity.

v) Two wires carrying current in the opposite direction repel each other.

PART -B

MARKS - 45

(Answer any five)

4.a) . What is optical image and optical centre ? 2

b) Define total internal reflection and critical angle with

diagram. 3

OR

With a neat ray diagram show the formation of a virtual image and real image by a concave mirror.

c) Define refractive index. The refractive indices of glass and water with respect to air are 3/2 and 4/3 respectively. What is the refractive index of water with respect to glass? 1+3=4

OR

A concave mirror of focal length 10cm is kept in front of an object at a distance of 50 cm from it. If the object has an height of 1cm, what will be the size, nature and position of the image.

5.a) What are the conditions of minimum deviation? 2

b) What are the elements of terrestrial magnetism? 3

c) Find the magnetic intensity at a point due to a bar magnet at the broad side on position. 4

6. a) State the laws of force between the charge and hence define unit charge. 3

b) Find an expression for the capacity of a parallel plate condenser. 3

c) A polythene piece rubbed with wool is found to have a negative charge of $3x10^{-7c}$. Estimate the number of electrons transferred from wool to polythene. 3

7. a) Define self and mutual induction. 2

b) In a grouping of cells in parallel , Calculate the condition for maximum current. 3

c) State and explain the Kirchhoff's Laws. 3

d) State Ohm's Law. 1

8. a) What is work function and threshold frequency in case of photoelectric effect? How they are related? 2+1=3

b) How the diod is used as a half-wave rectifier? 3

c) What does LASER stad for ? Name two application of it. 3

9. Write short notes -

a) Trasformer b) LED c) Photo Electric Cell 3x3=9

10. Write difference between- 3x3=9

a) Real image and virtual image

b) E.M.F.and P.D

c) primary and secondary cell

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