Reg. No.: …….

Name: ……..

SECOND YEAR HIGHER SECONDARY EXAMINATION SAMPLE QUESTION PAPER

Part III **Time: 2 Hours**

PHYSICS **Cool-off time: 15 Minutes**

Maximum : 60 Scores

General Instructions to Candidates.

- There is a 'Cool off time' of 15 minutes in addition to the writing time.
- Use the 'Cool of time' to get familiar with questions and to plan your answers
- Read questions carefully before answering.
- Read the instructions carefully.
- Calculations, figures and graphs should be shown in the answer sheet itself.
- Malayalam version of the questions is also provided.
- Give equations wherever necessary.
- Electronic devices except non programmable calculators are not allowed in the examination hall.

ANSWER ANY 5 QUESTIONS FROM 1 TO 7 (5X1=5 Scores)

1.Direction of electric dipole moment is from ---------- to----------
2.In a charged capacitor energy stored in the ---------- between the plates.
3.Right the unit of mobility.
4.Relation between velocity of light permittivity of free space permeability of free space is .....
5.The relation between radius of curvature and focal length of a spherical mirror.
6.What is the shape of the wavefront of light diverging from a point source.
7.Draw the symbol of a diode.

ANSWER ANY 5 QUESTIONS FROM 8 TO 14 (5X2=10 Scores)

8.What is the displacement current and write the equation.
9.Define mass effect.
10.How will you convert a galvanometer into ammeter.
11.State Gauss's low in magnetism.
12.Derive the expression for energy stored in an inductor.
13.Name the energy losses in transformer.

14.Using Ampere's circuital theorem derive the intensity of magnetic field on the axial point near the center of a current carrying solenoid.

ANSWER ANY 6 QUESTIONS FROM 15 TO 20 (6X3=18 Scores)

15.Derive an expression of the torque acting on a dipole in a uniform electric field.
16.Three capacities of capacitance 2pF, 3pF and 4pF are connected in parallel.
a. Calculate the effective capacitance of the combination.
b. Determine the charge on each capacitor if the combination is connected with 100 volt supply.
17. Write any two properties of ferro, dia and paramagnetism.
18.With a neat diagram explain the working of an AC generator.
19.State any two laws of photoelectric effect. Right Einstein's photoelectric equation.
20.Draw the energy level diagram of a hydrogen atom.

ANSWER ANY 3 QUESTIONS FROM 21 TO 24 (3X4=12 Scores)

21.Write any three properties of an equipotential surface.
Draw the shape of an equipotential surface around a point charge.
22.Using Biot-Savart law obtain the expression for the magnetic field due to a circular loop of radius are carrying a current I at a point on its axis at distance x from the centre of coil.
23.Refraction after spherical surface can be explained using the relation n2/v-n1/u =n2-n1/R. Using this derive lens makers formula.
24.Using Hygiene's principle explain refraction of a plane wave with the help of a diagram.
State Malu’s law.

ANSWER ANY 3 QUESTIONS FROM 25 TO 28 (3X5=15 Scores)

25. State Gauss,s theorem.
Using above theorem derive an expression for electric intensity at a point distant r from a line charge having linear charge density λ.
26.State Kirchhoff’s laws. Use Kirchoff’s rules to obtain the balancing condition in Wheatstone’s bridge.
27. Draw the phasor diagram of a series LCR circuit.
Obtain the expression for resonant frequency.
28.Derive the expression for refractive index of the material of the prism.

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