SAMPLE QUESTION PAPER

Reg No : .....
Name : .....

SECOND YEAR HIGHER SECONDARY EXAMINATION, MARCH 2023

Part – III Time: 2 Hrs
PHYSICS Cool-off time: 15 Minutes
Maximum: 60 Scores

General Instructions to Students

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

വിദ്യാർത്ഥികൾക്കുള്ള പൊതുനിർദ്ദേശങ്ങൾ

- നിർദ്ദിഷ്ട സമയത്തിന് പുറമെ 15 മിനിറ്റ് 'കൂൾ ഓഫ് ടൈം' ഉണ്ടായിരിക്കും.
- "കൂൾ ഓഫ് ടൈം' ചോദ്യങ്ങൾ പരിചയപ്പെടാനും ഉത്തരങ്ങൾ ആസൂത്രണം ചെയ്യാനും ഉപയോഗിക്കുക.
- നിർദ്ദേശങ്ങൾ മുഴുവനും ശ്രദ്ധാപൂർവം വായിക്കണം
- ഉത്തരങ്ങൾ എഴുതുന്നതിന് മുമ്പ് ചോദ്യങ്ങൾ ശ്രദ്ധാപൂർവ്വം വായിക്കണം.
- കണക്ക് കൂട്ടലുകൾ, ചിത്രങ്ങൾ, ഗ്രാഫുകൾ, എന്നിവ ഉത്തരപേപ്പറിൽ തന്നെ ഉണ്ടായിരിക്കണം
- ആവശ്യമുള്ള സ്ഥലത്ത് സമവാക്യങ്ങൾ കൊടുക്കണം
- പ്രോഗ്രാമുകൾ ചെയ്യാനാകാത്ത കാൽക്കുലേറ്ററുകൾ ഒഴികെയുള്ള ഒരു ഇലക്ട്രോണിക് ഉപകരണവും പരീക്ഷാ ഹാളിൽ ഉപയോഗിക്കുവാൻ പാടില്ല.

PART I

Answer any 5 questions from 1 to 7. Each carries 1 score

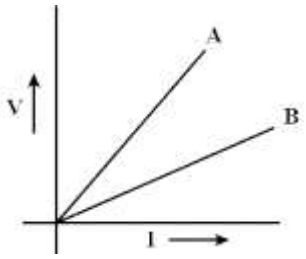
1. When Glass rod rubbed with silk, glass rod becomes -----ly charged and silk becomes positively charged.
2. 1 eV = ---------- Joules
3. If the current on two parallel conducting wires are in same direction, they ---------- (attract/repel)
4. State faraday's law of electromagnetic induction.
5. Transverse nature of light is proved by which of the following phenomenon? (Interference, Diffraction, Polarization, Scattering)
6. Momentum of a photon with wavelength λ is ----------
7. Find the energy equivalent of 1 u in MeV

PART II

Answer any 5 questions from 8 to 14. Each carries 2 scores.

8. Slope of V – I graph gives ----------

   Given the V – I Graph of two materials A and B. Which has more resistance

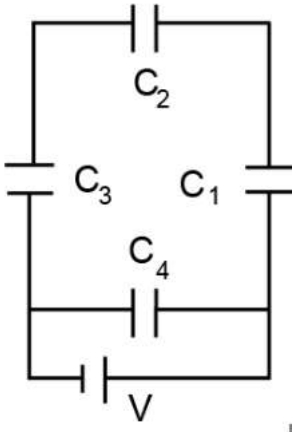


9. Define one ampere.
10. Write any two properties of magnetic field lines.
11. Name the different types of energy losses in a transformer.
12. State the conditions for total internal reflection.
13. Write Einstein's photoelectric equation and explain the terms involved in it.
14. Define mass defect. Write mathematical expression to for the mass defect.

PART III

Answer any 6 questions from 15 to 21. Each Carries 3 scores.

15. A network of four 10 μf capacitors are connected to a V=500 v supply. Determine the equivalent capacitance of the network.



16. Distinguish between diamagnetic, paramagnetic and ferromagnetic materials. Give one property of each.
17. Write any one use of the following electromagnetic waves

    a. Infrared Wave

    b. Ultraviolet wave

    c. X – Ray

18. Write the ray diagram of compound microscope. Write the equation to find its magnification.
19. The radius of nth stationary orbit of hydrogen atom is ----------
    Explain Bohr's Quantization condition
20. What do you mean by rectification. Explain the working of a full wave rectifier with the help of a neat diagram.
21. State and Prove Gausses Theorem.

PART IV

Answer any 3 questions from 22 to 25. Each carries 4 scores.

22. Derive the expression to find the capacitance of a parallel plate capacitor.
    Find the area of the plate of a capacitor of capacitance 1 μf if the separation between the plates is 1 mm
23. State Kirchoff's Junction rule. Obtain the balancing condition of Wheat stone Bridge
24. With the help of a neat diagram explain the working of AC generator
25. State Huygens principle. Using the principle prove Snell's Law.

PART V

Answer any 3 questions from 26 to 29. Each carries 5 scores.

26. What is an Electric dipole? Define dipole moment. With the help of a neat diagram find the electric field at a point on the equatorial plane of a electric dipole.

27. Name and state the law which gives the magnetic field on the axis of a circular current loop. Using this law derive an expression to find the magnetic field on the axis of a circular current Loop

28. Using a neat diagram find the expression for the impedance of a series LCR circuit. The power factor of a purely resistive circuit is ----------

29. Draw the ray diagram showing refraction of monochromatic light through a prism.
    Prove that the sum of angle of prism and angle deviation is equal to the sum of angle of incidence and angle of emergence.

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