Reg. No.: …….

Name: ……..

SECOND YEAR HIGHER SECONDARY EXAMINATION SAMPLE QUESTION PAPER

Part III
PHYSICS

Time: 2 Hours
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.

വിദ്യാർത്ഥികൾക്കുള്ള പൊതു നിർദ്ദേശങ്ങൾ

- നിർദ്ദിഷ്ട സമയത്തിന് പുറമെ 15 മിനിട്ടു 'കൂൾ ഓഫ് ടൈം' ഉണ്ടായിരിക്കും
- 'കൂൾ ഓഫ് ടൈം' ചോദ്യങ്ങൾ പരിചയപ്പെടാനും ഉത്തരങ്ങൾ ആസൂത്രണം ചെയ്യാനും ഉപയോഗിക്കുക
- ഉത്തരങ്ങൾ എഴുതുന്നതിനു മുമ്പ് ചോദ്യങ്ങൾ ശ്രദ്ധാപൂർവ്വം വായിക്കണം
- നിർദ്ദേശങ്ങൾ മുഴുവനും ശ്രദ്ധാപൂർവ്വം വായിക്കണം
- കണക്കു കൂട്ടലുകൾ, ചിത്രങ്ങൾ , ഗ്രാഫുകൾ എന്നിവ ഉത്തരക്കടലാസിൽ തന്നെ ഉണ്ടായിരിക്കണം
- ചോദ്യങ്ങൾ മലയാളത്തിലും നൽകിയിട്ടുണ്ട്
- ആവശ്യമുള്ള സ്ഥലത്തു സമവാക്യങ്ങൾ കൊടുക്കണം
- പ്രോഗ്രാമുകൾ ചെയ്യാനാകാത്ത കാൽക്കുലേറ്ററുകൾ ഒഴികെയുള്ള ഒരു ഇലക്ട്രോണിക് ഉപകരണവും പരീക്ഷ ഹാളിൽ ഉപയോഗിക്കുവാൻ പാടുള്ളതല്ല

HIGHER SECONDARY EXAM MARCH - 2023
MODEL QUESTION PAPER
PHYSICS

General Instructions.

Answer any five questions from 1 to 7 (5 × 1 = 5 Scores)

1. How many electrons are there in 16 μC. ?
2. How the capacitence of a parallel plate capacitor change if a dielectric medium is placed in between the plates ?
3. Lenz's law is in accordance with law of conservation of _____ ?
4. Name the e.m. wave used in remote control ?
5. Name the phenomenon of light that explain the transverse nature of light. ?
6. The energy of electron in the ground state of Hydrogen atom is _____ ? (-13.6 eV, +13.6 eV, -13.6 J, +13.6 J)
7. Source of energy in stars is _____. ?

Answer any five questions from 8 to 14. (5 × 2 = 10 Scores)

8. Derive the relation between drift velocity and electric current. ?
9. Establish a relation between susceptibility and relative permeability. ?

10. Write any two energy losses in transformer ?

11. What is meant by displacement current. ?

12. (a) Draw ray diagram of simple microscope. ? [1]

(b) Write an expression for its magnification. ? [1]

13. Find the ratio of radii of orbiting electron in the first and third orbits. ?

14. (a) Write an equation for nuclear radii. [1]

(b) Mass number of two nuclei are in the ratio of 1:27. Find the ratio of nuclear radii. [1]

Answer any 6 questions from 15 to 21. (6 × 3 = 18 score)

15. (a) Derrive the expression for electric field due to a point on the axial line of an electric dipole. ?

16. (a) Name the physical quantity having unit J/C.

(a) Electric field (b) Electric potential [1 M]

(c) Capacitence.

(b) Derrive an equation for potential due to a point charge. [2 M]

17. (a) How will you convert a galvanometer into

(a) Ammeter (b) Voltmeter. ?

18. (a) State Guass's theorem in magnetism. ? (1M)

(b)  Identify the magnetic material and write any two properties. ? [2 M]

19. (a) Explain the conditions of total Internal Reflection [1M]

(b) Find out refractive index when the critical angle is 45°. ? [2 M]

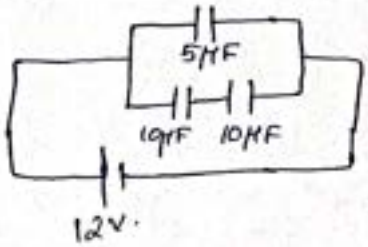
20. (a) Write Einstein's photoelectric equation. [1M]

(b) Work function of a metal is 2.5 eV and it is illuminated with a light of energy 6eV. Find the kinetic energy of emitted electron. ? [2 M]

21. Draw the circuit diagram of Full wave rectifier and explain its working.

Answer any three questions from 22 to 25 (3x4=12) Score.

22. (a) Derrive the effective capacitence in the series combination of capacitors. ? [2 M]

(b) 

Find out the effective capacitence. ? [2M]

(a) State Kirchoff's Junction rule. [1 M]

(b) Proove the balancing condition of whea bridge. [3 M].

(a) What is the principle of AC generator.

(b) Draw the schematic diagram of AC ger and explain its working. ? [3 M]

Using Huygen's principle prove the law of ction.

Answer any 3 questions from 26 to 29. (3×5 = 15 Score)

26. Name and State the law that gives the relation between electric flux and enclosed charge. (2)

(ii) Using this derive an equation for electric field due to an infinitely long wire. (3)

27 (a) State Biot-Savart law. (1)

(b) Derive an equation for magnetic field due to a Circular Coil (3)

(c) Find the magnetic field at the Centre of a Circular Coil of radius 3cm and Carrying a Current of 5A (1)

28 (a) Derive an equation for impedence in LCR Series Circuit (3)

(b) Potential difference across the resistor, Inductor and Capacitor in LCR Circuit are 300V, 200V and 600V. Calculate totatal voltage. (2)

29. (a) Trace the Path of rays through a Prism hence derive an equation for refractive Index. (3)

(b) Calculate the Speed of light through an equilateral Prism if angle of minimum deviation is 30° (2)

Question Paper prepared by

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