

G - 53

Roll No.....

Total No. of Questions : 21]

[Total No. of Printed Pages : 4

HSE2KROXI

9317-B

PHYSICS

Time : 3 Hours + 15 Minutes extra to read the question paper]

[Maximum Marks: 70

(Long Answer Type Questions)

1. Define the term dipole moment. Derive expression for the total work done in rotating the dipole through an angle ' θ ' in an uniform electric field.

Or

What is Parallel Plate Capacitor? Derive an expression for its capacitance when di-electric slab is introduced in between the plates.

5

2. Using Biot-Savart Law obtain an expression for the magnetic field at a point on the axis of a circular current loop.

Or

Describe an expression for torque acting on a bar magnet held at an angle ' θ ' with the direction of uniform magnetic field.

5

3. What is Rain-bow? What are its two types? How are they formed?

HSE2KROXI - 9317 - B

Turn Over

Or

With the help of a labelled diagram, explain the working of a compound microscope. Obtain an expression for its magnification power. 5

What is Diffraction of Light? Describe diffraction of light at a single slit.

Or

Deduce the conditions of maxima and minima in Young's double slit experiment and find an expression for fringe width. 5

(Short Answer Type Questions)

Write the properties of electric lines of force. 3

State Ohm's law. Define one ohm of resistance. 3

What are ferromagnetic substances? Give properties of ferromagnetic substances. 3

State Faraday's laws of electromagnetic induction. 3

Show that the De-Broglie wavelength ' λ ' of electrons of energy E is given by the relation $\lambda = \frac{h}{\sqrt{2mE}}$ 3

0. Define binding energy and mass defect. Obtain an expression for binding energy per nuclear. 3

1. What is Rectification? Explain the function of PN-junction diode as full-wave rectification. 3

12. Why it is necessary to use satellite for long distance T.V. transmission? Give reasons. 3

(Very Short Answer Type Questions)

13. What are the factors on which resistance of a conductor depends? Give the corresponding relation. 2
14. What is Self-induction? State any two factors on which the self inductance of a long solenoid depends. 2
15. Give the uses of ultraviolet rays. 2
16. Define power of a lens. Express it in terms of refractive index of the lens. 2
17. Mention two uses of polaroids. 2
18. What percentage of a given mass of a radio-active substance will be left undecayed after five half-life period ? 2
19. Give Boolean expression and truth table of NAND gate. 2
20. What do you understand by the term modulation ? 2

(Objective Type Questions)

21. (i) Manganin is used for making standard resistance. Why? 1
- (ii) Arrange iron, silicon, copper in decreasing order of conductivity. 1
- (iii) Name the factors, which is responsible for the production of induced e.m.f. in a coil. 1
- (iv) A wire is kept along North-South is allowed to fall freely. Will an induced e.m.f. be setup? <https://www.jkboseonline.com> 1
- (v) What is physical significance of self-induction ? 1
- Choose correct answer :
- (vi) Electromagnetic waves are produced by :
- (a) an accelerating charge (b) a static charge
- (c) a moving charge (d) charge-less particle 1

(vii) Photoelectric effect is due to :

- (a) wave nature of light (b) particle nature of light
(c) both (a) and (b) (d) none of these

1

(viii) In which of the following decay, the element does not change:

- (a) γ rays (b) β^- rays
(c) β^+ rays (d) α rays

1

(ix) In the depletion region of an unbiased PN junction diode, there are:

- (a) Only electrons (b) Only holes
(c) Both (a) and (b) (d) Only fixed ions

1

(x) In a NOR gate input signals are $A = 0$, $B = 1$, the output is:

- (a) -1 (b) 0
(c) 1 (d) undefined

1

<https://www.jkboseonline.com>

Whatsapp @ 9300930012

Send your old paper & get 10/-

अपने पुराने पेपर्स भेजे और 10 रुपये पायें,

Paytm or Google Pay से