Code Number: **A**

Aakash
Medical | IIT-JEE | Foundations

Corp. Office: Aakash Educational Services Limited, 3rd Floor, Incuspaze Campus- 2, Plot No. 13, Sector- 18, Udyog Vihar, Gurugram, Haryana - 122015

Time: 3 hrs. **Max. Marks: 60**

Mock Test Paper for Class-XII

PHYSICS

Roll No. | | | | | | | | | | | |

GENERAL INSTRUCTIONS

Read the following instructions carefully and follow them:

1. The Question paper consists of section **A, B,** and **C**
2. Answer all the questions of **Section A**. Answer ANY **SIX** questions out of **eight** in **Section B** and answer **ANY TWO** questions out of **three** "in **Section C**.
3. In **Section A**, questions from Sl. Nos. **1** to **10** are of '**very short answer type**'. Each question carries **TWO** marks. Every answer may be limited to **5** lines. Answer all the questions at one place in the same order.
4. In **Section B**, questions from Sl. Nos. **11** to **18** are of '**short answer type**'. Each question carries **FOUR** marks. Every answer may be limited to **20** lines. Answer any **SIX** questions out of 8 questions..
5. In **Section C**, questions from Sl. Nos. **19** to **21** are of '**long answer type**'. Each question carries **EIGHT** marks. Every answer may be limited to **60** lines. Answer any **TWO** questions out of 3 questions.
6. Draw labelled diagrams, wherever necessary for questions in **Sections B** and **C**.

SECTION - A

I. Answer ALL questions. **10 x 2 = 20**

1. What is dispersion? Which colour gets relatively more dispersed?
2. How do you convert a moving coil galvanometer into a voltmeter?
3. What are the units of magnetic moment, magnetic induction and magnetic field?
4. The earth's magnetic field at the equator is approximately 0.4 G. Estimate the earth's dipole moment.
5. What is the phenomenon involved in the working of a transformer?
6. Write any two of use of infrared rays. Which animal can detect infrared rays?
7. What is 'work function'?
8. What is the De-Broglie wavelength associated with an electron, accelerated through a potential difference of 100 volts?
9. Draw the circuit symbols for p-n-p and n-p-n transistors.
10. What are the basic blocks of a communication system?

SECTION - B

II. Answer any SIX questions. **6 x 4 = 24**

11. Define focal length of a concave mirror. Prove that the radius of curvature of a concave mirror is double its focal length.
12. How do you determine resolving power of your eye?
13. Derive an equation for the couple acting on an electric dipole in a uniform electric field.
14. Three capacitors of capacitances 2 pF, 3 pF and 4 pF are connected in parallel.
    a) What is the total capacitance of the combination?
    b) Determine the charge on each capacitor if the combination is connected to a 100 V supply.
15. State and explain Biot-Savart law.
16. Describe the ways in which eddy currents are used to advantage.
17. Explain different types of spectral lines.
18. What is rectification? Explain the working of a full wave rectifier.

SECTION - C

III. Answer any TWO questions. **2 x 8 = 16**

19. What is Doppler Effect? Obtain an expression for the apparent frequency of sound heard when the source is in motion with respect to an observer at rest.

20. (a) State the working principle of potentiometer. Explain with the help of circuit diagram how the emf of two primary cells is compared by using the potentiometer.

    (b) In a potentiometer arrangement. a cell of emf 1.25 V gives balance point 35.0 cm length of the wire. If the cell is replaced by another cell and the balance point shifts to 63.0 cm, what is the emf of the second cell?

21. Explain the principle and working of a nuclear reactor with the help of a labeled diagram.

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