PHYSICS

BOOKS - MBD -HARYANA BOARD

MODEL TEST PAPER (SOLVED)

Multiple Choice Questions

1. The dimensional formula of electric intensity is

A. $\left[MLT^{-3}A^{-1}\right]$

B. $\left[M^2LT^{-3}A^{-1}\right]$

C. $\left[ML^2T^{-2}A^1\right]$

D. $\left[M^2LT^{-3}A^{-1}\right]$

Answer: A

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2. Resistivity of a conducting wire :

A. varies with its length

B. varies with mass

C. varies with is cross-section

D. is independent of its demensions.

Answer: D

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3. The two linear parallel conductors carrying currents in the opposite direction...................... each other.

A. attract each other

B. repel each other

C. neither attract nor repel each other

D. None of these

Answer: B

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4. What type of current is used in household supply?

A. zero

B. 60 Hz

C. 50 Hz

D. None of these

Answer: C

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5. What is the angle of dip at a place where horizontal and vertical components of earth's field are equal?

A. $60°$

B. $45°$

C. $90°$

D. $0°$

Answer: B

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6. Optical fibre are based on

A. reflection

B. refraction

C. diffraction

D. total intenal reflection.

Answer: D

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7. The nature of electromagnetic wave is-

A. Transverse

B. Longitudinal

C. Horizontal

D. Vertical

Answer: A

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8. Which photon is more energetic: A red one

or a violet one?

A. Red

B. Green

C. Violet

D. Yellow

Answer: C

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9. The penetrating power is maximum for :

A. α- rays

B. β - rays

C. γ - rays

D. None of these

Answer: C

10. The penetrating power is maximum for :

A. α- rays

B. β - rays

C. γ - rays

D. None of these

Answer: C

11. A p-type semiconductor is

    A. Neutral

    B. Negatively charged

    C. Positively charged

    D. None of these

Answer: A

12. How many number of satellites are needed

for global communications?

A. 2

B. 3

C. 4

D. 5

Answer: A

13. SI unit of electric capacitance is :

A. a coulomb (IC)

B. a volt (1V)

C. a farad (IF)

D. a volt-metre (1V - m)

Answer: C

14. Electrical resistivity of a given metallic wire depends upon :

    A. length

    B. temperature

    C. cross - section area

    D. volume

Answer: B

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1. Find the coulomb's force between two protons placed at 8×10^{-14}m distance.

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2. Define capacitance, give its S.I. unit and dimensional formula.

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3. The strength of magnetic field inside a long current-carrying straight solenoid is:

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4. What are magnetic elements at a place? Define them.

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5. Magnetic flux of $5\mu Wb$ is linked with a coil when a current of 1 mA flows through it. What

is the self-inductance of the coil ?

6. Light can travel in vacuum whereas sound can not do so. Why?

7. Define power of a lens and give its ralation with focal length.

8. Why is the semiconductor damaged by a strong current?

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9. Explain why T.V. transmission towers are usually made high.

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10. Hwo can a voltmeter of resistance 200 ohm and measuring 10 V be used tomeasure a current of 5A ?

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1. Derive the expression for the electric potential due to an electric dipole at a point on its axial line.

2. Derive an experssion for the average power in LCR circuit connected to a.c. supply. Hence define power factor. Show that average power cousumed per cycle in an a.c. circuit conataining an ideal capacitor is zero.

3. What is total internalreflection ? What is the meaning of critical angle ? What are the

necessary conditions for total internal reflection ?

Write the relation between critical angle and refractive index of the medium.

4. State two laws of photoelectric emission.

Are cathode rays waves or particle?

5. What are the postulates of Bohr's model of an atom?

6. A conductor of length l is connected to a.d.c, source of potential V. If the length of the conductoris tripled by stretching it, keeping V constant, explain how do the following factors vary in the conductor ?

(i) Drift speed of electrons (ii) Resistance (iii) Resistivity.

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7. Derive a relation between current gain of common emitter amplifier.

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Long Answer Type Questions

1. Explain the principle, construction and working of a cyclotron.

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2. A galvanometer can be converted into an ammeter by connecting

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3. (a) Obtain an expression for the effective focal length of a combination of two lenses placed in contact coaxially with each other.

(b) By drawing a diagram, show how can a totally reflecting prism to be used to deviate a ray of light through $180°$.

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4. State Huygen's principle for the propagation of light and prove the laws of refraction of

light on its basis.

5. What is an oscillator ? Discuss the use of a

junction transistor as an oscillator.

6. How is junction diode formed ? Discuss the

working of a junction diode as a full-wave

rectifier.

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