



PHYSICS

BOOKS - OSWAAL PUBLICATION

PHYSICS (KANNADA ENGLISH)

2018 Solved Paper II

Exercise

1. Write the colour code for a carbon resistor of resistance is $(2.5K \pm 20\%) \Omega$.



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2. What is the magnetic moment associated with a current loop of area $2 \times 10^{-3} m^2$ and carrying current of 0.5A?



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3. Which important property differentiates magnetic field lines and electric field lines?



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4. What is meant displacement current?



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5. Mention any one application of γ - ray.



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6. Define critical angle for a pair of media.



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7. Give the expression for the wavelength of a charged particle in terms of accelerating potential and explain the meaning of the symbols used.



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8. Represent graphically the variation of photoelectric current with the intensity of incident radiation for a given photo sensitive material.



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9. Give an example for isobars.



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10. Mention one advantage of frequency modulation (FM) over amplitude modulation (AM) in communication.



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11. What are the limitations of ohm's law?



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12. State Kirchhoff's laws of Electrical network.



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13. Define tesla. using the expression for the force on a charged particle moving in a magnetic field.





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14. Which are the two properties required for a material to be used as a core of electromagnets.



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15. What are thermal generators? Mention the value of frequency of ac used in India.



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16. Mention any two differences between primary rainbow and secondary rainbow.



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17. What is a light emitting diode? Write an advantage of using it over conventional low power lamps.



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18. Explain the term .amplification. in communication system. Why is it necessary?



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19. Derive the expression for torque on an electric dipole placed in a uniform electric field.



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20. What is an equipotential surface? Draw the equipotential surfaces for i) a uniform electric field and ii) a point charge.



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21. What is an equipotential surface? Draw the equipotential surfaces for i) a uniform electric field and ii) a point charge.



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22. Draw the graphs representing the variation of resistivity with temperature for (1) copper (2) nichrome (3) a typical semiconductor.



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24. Draw the graphs representing the variation of resistivity with temperature for (1) copper (2) nichrome (3) a typical semiconductor.



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25. Define the term .angle of dip.. Find the value of dip at a place if the vertical component of Earth.s magnetic field is $\sqrt{3}$ times the horizontal component.



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26. Show that the charges oscillate with a frequency given by $\omega = 1/\sqrt{LC}$ when a charged capacitor of capacitance C is connected to an inductor of inductance L .



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27. What is meant by diffraction of light? Write the conditions for maxima and minima of diffraction pattern in terms of the wavelength of light used for the diffraction at single slit.



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28. What are logic gates? Give the logic symbol of NOT and AND gates.



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29. Derive an expression for the electric field at a point due to an infinitely long thin charged straight wire using Gauss Law.



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30. Obtain an expression for the equivalent emf and internal resistance of two cells connected in parallel.



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31. Write three postulates of Bohr. Mention two limitations of Bohr model.



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32. What is amplification? With a circuit diagram, explain the working of npn transistor as an amplifier in CE configuration.



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33. A 900pF capacitor is charged by 100 V sources. Calculate the electrostatic energy stored in the capacitor. The capacitor is then disconnected from the source and connected

to another uncharged 900pF capacitor . Find the common potential of the system ?



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34. A pointer galvanometer with a scale of 30 divisions has a resistance of 12Ω full scale deflection is obtained for a current of 3mA .Calculate the current sensitivity of the galvanometer .How will you convert this galvanometer into a voltage of range 0 to 18 V ?



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35. A resistor and a capacitor are connected in series to a 50 Hz ac source . The voltage (rms) across the resistor and capacitor are 151 V and 160.3 V respectively Calculate the rms voltage of the source .Also find the capacitive reactance and impedance of the circuit , if the circuit is 0.755 A .



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36. double -convex lens is to be manufactured from a glass of refractive index 1.55 with both faces of the same radius of curvatures . Calculate the radius of curvature required if the focal length is to be 20 cm ? Also find the focal length of the lens if it is immersed in water of refractive index 1.33 ?



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