



PHYSICS

BOOKS - OSWAAL PUBLICATION

PHYSICS (KANNADA ENGLISH)

Sample Paper 1

Exercise

1. Charges of $10\mu C$ and $15\mu C$ are separated by a certain distance. Which charge repels the

other with a greater force?



Watch Video Solution

2. How does the mobility of a charged particle vary with its mass?



Watch Video Solution

3. Susceptibility of a magnetic material is -1.66×10^{-5} . Name the type of magnetic material.



Watch Video Solution

4. The core of the transformer is laminated to :



Watch Video Solution

5. Mention the need for displacement current.



Watch Video Solution

6. What is Myopia? Name the lens used to correct Myopia.



Watch Video Solution

7. What happens to the interference fringes when the distance between the two coherent sources is decreased?



Watch Video Solution

8. In proton - proton cycle, what is the approximate energy released?



[Watch Video Solution](#)

9. Name the operating region of a transistor for the use of transistor as an amplifier.



[Watch Video Solution](#)

10. What is a repeater ?



[Watch Video Solution](#)

11. Define Electric flux.



[Watch Video Solution](#)

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



[Watch Video Solution](#)

13. What are

i. Magnetic declination

ii. Magnetic dip

iii. Horizontal component of earth's magnetic field at a place?



Watch Video Solution

14. What are

i. Magnetic declination

ii. Magnetic dip

iii. Horizontal component of earth's magnetic field at a place?



[Watch Video Solution](#)

15. State Faraday's law of electromagnetic induction.



[Watch Video Solution](#)

16. State Aufbau principle.



[Watch Video Solution](#)

17. Give an example for alpha decay and write the range of Q-value for alpha decay.



Watch Video Solution

18. What is an integrated circuit?



Watch Video Solution

19. Draw a neat labelled block diagram of an AM transmitter.



Watch Video Solution

20. Derive an expression for potential energy of a system of two charges in the absence of the external electric field.



Watch Video Solution

21. What is toroid? Mention an expression for magnetic field at point inside a toroid.



[Watch Video Solution](#)

22. Give the expression for period of oscillation of a magnetic dipole (magnetic needle) in an uniform magnetic field and the meaning of the symbols.



[Watch Video Solution](#)

23. Deduce the expression for energy stored in an inductor of self inductance L to build up a current I .



Watch Video Solution

24. What is a phasor? What is the phase difference between current and voltage in a purely capacitive ac circuit? Show the phase difference through a phasor diagram.



Watch Video Solution

25. Give the Cartesian sign convention for measuring distances in spherical mirrors and lenses.



Watch Video Solution

26. What are the characteristics of nuclear forces?



Watch Video Solution

27. Explain with the help of a circuit diagram, how the thickness of depletion layer in a p-n junction diode changes when it is forward biased?



[Watch Video Solution](#)

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



[Watch Video Solution](#)

29. Derive the expression for equivalent emf and equivalent internal resistance of two cells connected in series.



Watch Video Solution

30. Derive the expression for magnetic field at a point on the axis of a circular current loop.



Watch Video Solution

31. State the condition for constructive interference in terms of path difference between the two waves.



Watch Video Solution

32. Obtain an expression for the total energy of an electron in the n^{th} orbit of hydrogen atom in terms of absolute constants.



Watch Video Solution

33. A capacitor of capacitance $5\mu F$ is charged to potential of 500 V. Then it is disconnected from the battery and connected to uncharged capacitor of capacitance $3\mu F$. Calculate the common potential, charge on each capacitor and the loss of energy.



Watch Video Solution

34. A resistance of 600Ω , an inductor of 0.4 H and a capacitor of $0.10\mu F$ are connected in

series to an AC source of variable frequency. Find the frequency of AC source for which current in the circuit is maximum. Also calculate the band width and quality factor for the circuit.



[Watch Video Solution](#)

35. A convex lens of focal length 0.24 m and of refractive index 1.5 is completely immersed in water of refractive 1.33. Find the changes in the focal length of the lens.



Watch Video Solution

36. Ultraviolet light of wavelength 2271\AA from a 100 W mercury source irradiates a photo-cell made of molybdenum metal. If the stopping potential is -1.3V , estimate the work function of the metal. How would the photo-cell respond to a high intensity ($\sim 10^5\text{Wm}^2$) red light of wavelength 6328\AA produced by a He-Ne laser ?



Watch Video Solution

