PHYSICS

BOOKS - SUNSTAR PHYSICS (KANNADA ENGLISH)

II PUC PHYSICS (ANNUAL EXAM QUESTION PAPER MARCH - 2019)

Part A

1. State Coulomb.s law

2. Define electrical resistivity of a material of a conductor.

3. Write the expression for force acting on a moving charge in a magnetic field.

4. What is magnetic susceptibility ?

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5. How the self-inductance of a coil depends on number of turns in the coil ?

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6. For which position of the object magnification of convex lens is -1 (minus one) ?

7. For which angle of incidence reflected ray is completely polarised ?

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8. Mention any one type of electron emission.

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9. Write the expression for energy of an electron orbit of hydrogen atom.

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10. Write the relation between Half-life of radioactive element.

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11. Write any two basic properties of charges

12. Write the expression for drift velocity in terms of current and explain the terms.

13. What are

i. Magnetic declination

ii. Magnetie dip

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

14. Write the expression for speed of light in terms of μ_0 and ε_0, explain the terms used.

15. Write the ray diagram for formation of image in the simple microscope.

16. What is diffraction of light ?

17. Write the expression for de-Broglie wavelength of electrons interms of electric potential and explain the terms used.

18. Distinguish between n-type and p-type semiconductos.

19. Derive an expression for electric potential energy of a systemm of charges in an electric field.

20. Obtain an expression for the force between two straight parallel conductor carrying current. Hence define ampere.

21. Distinguish between .dia. and .ferro. magnetic materials.

22. Mention the three types of energy loss in a transformer.

23. Write three experimental observation of photoelectric effect.

24. Write the three postulates of Bohr.s atomic model.

25. Explain the .Conduction band. .Valence band. and .Energy gap. in semiconductors.

26. What is modulation ? Write the block diagram of the receiver.

27. Write the expression for electric field intensity at any point outside and inside due to a charged spherical shell.

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

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

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30. Derive an expression for the impedance of a series LCR, circuit, when an AC voltage is applied to it.

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31. Derive th lens maker's formula.

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

33. In a circular parallel plate capacitor radius of each plate is 5 cm and they are separated by a distance of 2mm. Calculate the capacitance and the energy stored. When it is

charged by connectig battery of 200 V. (given

$\varepsilon_0 = 8.854 \times 10^{-12} Fm^{-1}$)

34. Two resistors are connected in series with 5V battery of negligible internal resistance. A current of 2 A flows through each resistor. If they are connected in parallel with the same battery a current of $\dfrac{25}{3} A$ flows through combination. Calculate the value of each resistance.

35. A conductor of length 3m moving in a uniform magnetic field of strength 100 T. It covers a distance of 70 m in 5 sec. Its plane of motion makes an angle of $30°$ with direction of magnetic field. Calculate the emf induced in it.

36. In a Young.s double slit experiment wave length of light used is 5000 A and distance between the slits is 2mm, distance from slits is 1m. Find fringe width and also calculate the distance of 7th dark fringe from central birght fringe.

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37. Half life of U-238 undergoing α decay is 4.5×10^9 years. What is the activity of one

gram of U-238 sample ?