PHYSICS

BOOKS - SUNSTAR PHYSICS (KANNADA ENGLISH)

ANNUAL EXAM QUESTION PAPER MARCH -2015

Part A

1. Define S.I unit of charge .

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2. a resistor is marked with colours red , red, orange and gold . Write the value of its resistance .

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3. State Ampere.s Circuital Law

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4. What is ment by magnetic declination ?

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5. What is the significance of Lenz's law ?

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6. How is the power of lens related to its focal length ?

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7. What is the outcome of Davission Germer Experiment?

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8. name the spectral series of hydrogen which lies in the ultraviolet region of elecrongnetic spectrum .

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9. What is meant by specific binding energy ?

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10. What is attenuation in communication system ?

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11. Write Coulomb's law in vector form and explain the terms.

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12. Give any two practical limitations of Ohm's law.

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13. List the properties of magnetic field lines.

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14. Current in a coil falls from 2.5a to 0.0a in 0.1 second inducing an emf of 200v.calculate the value of self inductance .

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15. Mention two applications of infrared radiation.

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16. Draw the ray diagram of image formation in case of compound microscope

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17. what is photo diode? Mention its one use.

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18. Draw the block diagram of generalised communication system.

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19. Derive an expression for capacitance of a paralle plate capacitor

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20. How is galvanometer converted into an ammeter?

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21. Distinguish between diamagnetic and paramagnetic substances.

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22. Derive the expression for emf induced in a straight conductor moving perpendicular to a uniform magnetic field.

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23. Show that voltage in an inductor leads the current by $\pi / 2$ rad for a pure inductor

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24. what is interference ? Write the condition for path difference in case of constructive and destructive interference.

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25. Derive an expression for the radius of n^{th} Bohr's orbit of hydrogen atom hence write the expression for the radius of first orbit of hydrogen atom.

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26. Distinguish between conducor and semiconductor on the basis of theory of solids.

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27. Obtain an expression for the electric field intenstiy at a point on the equatorial line of an electric dipole.

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28. Obtain an expression for equivalent resistance of two resistors 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 the expression for refractive index of the material of the prism in terms of angle of the prism and angle of minimum deviation.

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31. Write Einsteins's equation of photoelectric effect. Give Einstens explanation of photoelectric effect.

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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. two point charges + 1n C and -4 nc are 1m apart in air . Find the positions along the line joining the two charges at which resultant potential is zero.

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34. Two cells of emf 2V and 4V and internal resistance 1Ω and 2Ω respectively are connected in parallel so as to send the current in the same direction through an external

resistance of 10Ω. Find the potential difference across 10Ω resistor.

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35. A sinusoidal voltage of peak value 283 V and frequency 50 Hz is applied to a series LCR circuit in which $R = 3\Omega, L = 25.48mH,$ and $C = 796\mu F.$ Find (a) the impedance of the circuit, (b) the phase difference between the voltage across the source and the current, (c) the power

dissipated in the circuit, and (d) the power factor.

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36. In a young ,s double slit experiment distance the slits is 1mm. The fringe width is found to be 0.mm. when the screen is moved through a distance of 0.25m away from the plane of the slit used .

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37. Determine the mass of Na^{22} which has an activity of 5mCi. Half life of NA^{22} is 2.6 years. Avogadro number $= 6.023 \times 10^{23}$ atoms.

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