

UDALA COLLEGE, UDALA

TEST EXAM -2018

SUB : PHYSICS

CLASS : +2 2ND YEAR SCIENCE.

TIME: 2 HOURS F. M. - 70

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[All questions of Group-A, answer any ten from Group-B, any five from Group-C and any two from Group-D.

Marks are indicated in the right hand margin.]

Group - A

Choose the correct answer: [15 x 1]

1. S.I Unit of Electrical conductivity is -

- a) $I / (\text{ohm} \times \text{meter})$ b) meter / ohm
c) ohm x meter d) ohm / meter

2. The dimension of Magnetic flux is -

- a) $M^2L^3T^{-3}A^1$ b) $M^1L^3T^{-3}A^1$
c) $M^1L^2T^{-3}A^{-1}$ d) $M^1L^2T^{-2}A^{-1}$

3. To prepare . n-type Semiconductor which impurity is added to Germanium.

- a) AS b) In c) Ar d) AI

4. Two resistance r_1 & r_2 are joined in ~~Series~~ *Series*

The Equivalent resistance R is-

- a) $r_1 + r_2$ b) $\frac{r_1 r_2}{r_1 + r_2}$ c) $r_1 - r_2$ d) $r_1 r_2$

P.T.O.

5. A student said that a possible unit for Electric Field in $JC^{-1}m^{-1}$, is this correct?

- a) Yes b) No

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6. Name the charge carriers in P-type Semiconductors-

- a) Electrons b) holes

7. A glass rod rubbed with dry silk cloth _____ some electrons (loses / accepts)

8. Resistivity of a conductor is _____ proportional^{ed} to the length. (directly / indirectly)

9. In p-n junction reverse bias p-type is connected to _____ terminal of the battery . (positive / negative)

10. The conservation of energy is expressed by which law?
(Kirchhoff 's voltage law / Kirchhoff 's current law)

11. Meter bridge works on the principle of _____ .

- a) Wheatstone Bridge b) Faraday's law

12. Unlike charges _____ each other .

(attracts / repels)

13. Which law gives the direction of induced current ?

- a) Lenz's law b) Faraday's law

14. Electric current is a _____ quality. (Scalar / vector)

15. In the equation $\vec{F}_m = q \left(\vec{u} \times \vec{B} \right)$, what is the angle between \vec{F}_m & \vec{u} . **Techofworld.In**

- a) 0 b) 90° c) 45° d) 180°

Group - B

[10 x 2]

1. What is Lorentz force? Explain it.
2. Draw the Cct symbol for npn & pnp transistor .
3. What is Biot Savant's Law ?
4. Define ethnic and Non-ethnic conductors.
5. Define coulomb.
6. What is an ideal Electric dipole ?
7. Write the dimensional formula of Resistance?
8. Sketch the Electric line of force due to a point charges –
i) $q < 0$ ii) $q > 0$
9. Define Electric power and its unit.
10. Define the S.I. unit of current.
11. Define ~~importance~~ coefficient of resistance.
12. What is Electric dipole moment?

Group - C

[5 x 4]

1. What is donor impurity ? Explains it with diagram.
2. Find out the relation between S.I. and C.G.S. unit resistance.

4. State Kirchhoff's Current Law and Kirchhoff's Voltage Law?
5. Derive Coulomb's Law from Gauss's Law in Electrostatics.
5. State the difference between p-type and n-type Semiconductor.
6. Deduce the formula and dimension of the resistivity of a material.

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Group - D

[7.5 x 2]

1. What is an Electric dipole? Derive an expression for the electric field intensity at a point on the axis of dipole.
2. State Biot-Savart's Law. Apply it to determine the magnetic field at a point near an infinitely long straight wire carrying a current.
3. What is cyclotron? Discuss its construction, working and theory. State its limitations.
4. Calculate the equivalent resistance of a number of resistors connected in series.
