K16U 1231

Reg. No. : .....

Name : .....

II Semester B.Sc. Degree (CCSS-Reg./Supple./Improv.)
Examination, May 2016
COMPLEMENTARY COURSE IN PHYSICS
2C02 PHY : Electricity, Magnetism and Thermal Physics
(2014 Admn. Onwards)

Time : 3 Hours Max. Marks : 32

***Instruction** : Write answers in **English only**.*

SECTION – A

Answer **all**. Very short answer type. **Each** question carries **one** mark.

1. The mathematical expression for first law of thermodynamics is _____
2. As length of the wire increases its resistivity _____
3. During isothermal process _____ remains constant.
4. Time constant of L-R circuit is _____
5. Carey-Foster bridge is worked on _____ principle. **(5×1=5)**

SECTION – B

Answer **any four**. Short answer type. **Each** question carries **two** marks.

6. Distinguish between reversible and irreversible process. Give one example for each.
7. State Biot-Savart Law.
8. What do you mean by thermal equilibrium and state zeroth law of thermodynamics.
9. How can we calibrate an ammeter using potentiometer ?
10. State second law of thermodynamics.
11. Define Isochoric and Isobaric process. **(4×2=8)**

P.T.O.

SECTION – C

Answer **any three**. Short essay/problem type. **Each** question carries **three** marks.

12. Compare Ballistic galvanometer and Dead beat galvanometer.

13. One mole of a gas at 27° C expands adiabatically until its volume is doubled. Calculate the work done. ($\gamma = 1.4$).

14. Derive the relation between adiabatic elasticity and isothermal elasticity.

15. Derive the expression for current carrying conductor in a magnetic field.

16. Discuss the critically damped condition in LCR circuit. **(3×3=9)**

SECTION – D

Answer **any two**. Long essay type. **Each** question carries **five** marks.

17. Give the statement of Carnot's theorem and prove them.

18. Derive the expression for magnetic induction at a point on the axis of a circular coil carrying current.

19. Discuss growth and decay of charge in C-R circuit.

20. Derive expression for work done during isothermal and adiabatic process. **(2×5=10)**
