K18U 0511

Reg. No.: .....

Name : .....

II Semester B.Sc. Degree (C.B.C.S.S. – Reg./Supple./Imp.) Examination, May 2018

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. As length of the wire increases its resistivity _____
2. The process in which entropy is a constant is called _____
3. The SI unit of magnetic flux is _____
4. Carey-Foster bridge is worked on _____ principle.
5. Time constant of L-R circuit is _____

SECTION – B

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

6. State second law of thermodynamics.
7. Define time constants in L-R circuit and C-R circuit.
8. Distinguish between reversible and irreversible process. Give one example for each.
9. How can we calibrate an ammeter using potentiometer ?
10. Distinguish between Ballistic Galvanometer and dead beat galvanometer.
11. Derive an expression for work done in rotating a magnet in a field.

P.T.O.

SECTION – C

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

12. Show that adiabatic elasticity of a gas is γ times the isothermal elasticity.
13. What is the torque on a current carrying loop in a uniform magnetic field ?
14. State and explain Carnot's theorem.
15. Discuss the critically damped condition in LCR circuit.
16. Derive expressions for work done during isothermal and adiabatic process.

SECTION – D

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

17. Explain with necessary theory how a Carey Foster bridge may be used to compare two nearly equal resistances.
18. Explain the working of a Carnot's Engine with the help of a neat indicator diagram. Derive an expression for efficiency of Carnot's Engine.
19. Discuss the growth and decay of current in L-R circuit.
20. Derive an expression for Magnetic Induction at a point due to a straight conductor carrying current.
