M 8791

Reg. No. : .....

Name : .....

II Semester B.Sc. Degree (CCSS-2014 Admn. – Regular) Examination, May 2015

COMPLEMENTARY COURSE IN PHYSICS

2C02 PHY : Electricity, Magnetism and Thermal Physics

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. Carey-Foster bridge is worked on _____ principle.
2. The process in which entropy is a constant is called _____
3. _____ is the potential difference that should be applied to the galvanometer to produce a deflection of 1mm on a scale at a distance of 1 meter.
4. The SI unit of magnetic flux is _____
5. As length of the wire increases its resistivity _____ **(5×1=5)**

SECTION – B

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

6. Define time constants in L-R circuit and C-R circuit.
7. Define temperature co-efficient of resistance. Write down its expression.
8. A capacitor of capacitance 0.1 μ F is first charged and then discharged through a resistance of 10 mega ohm. Find the time, the potential will take to fall to half its original value.
9. State second law of thermodynamics.
10. Distinguish between Ballistic Galvanometer and dead beat galvanometer.
11. State Biot-Savart Law. **(4×2=8)**

P.T.O.

SECTION – C

Answer **any three** Short Essay/Problem type – **each** question carries **three** marks.

12. Find the efficiency of the Carnot's engine working between steam point and ice point.

13. Show that adiabatic elasticity of a gas is Y times the isothermal elasticity.

14. How will you use a potentiometer to calibrate a high range voltmeter ?

15. What is the torque on a current carrying loop in a uniform 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. 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.

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

19. Derive expression for work done during isothermal and adiabatic process.

20. Discuss the growth and decay of current in L-R circuit. **(2×5=10)**
