

Seat No. : _____

AU-104

May-2016

B.Sc., Sem.-II

CC-103 : Physics

Time : 3 Hours]

[Max. Marks : 70

- Instructions :** (1) All questions carry equal marks.
(2) Symbols carry usual meaning.

1. (a) Explain the case $\frac{R^2}{4L^2} = \frac{1}{LC}$ for the growth of charge in L-C-R series circuit connected to a D.C. source.

OR

Write a note on Maxwell's Bridge.

- (b) Explain the working of Full-wave Rectifier.

OR

Explain the working of Bridge Rectifier.

2. (a) State and explain the useful theorem of Electrostatics.

OR

Derive an expression for the electric Potential at a point on the axis of a ring having Uniform Linear charge density.

- (b) Explain the electrostatic Energy for a system of charges.

OR

Derive an expression for the electric Potential at a point situated at some distance from the centre of an electric dipole.

3. (a) Explain the collision in Plasma.

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OR

Derive the Einstein's equation showing the relation between Diffusion and Mobility in the Plasma.

- (b) Derive the relation $D_a = 2D_i$ for the ambipolar diffusion in Plasma.

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OR

Explain the Space Plasma.

4. (a) Explain the Artificial Radioactivity.

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OR

Explain the different types of Nuclear reactions.

- (b) Explain the carbon dating method to determine the age of the earth.

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OR

Derive the standard form of Q-equation.

5. Answer the following questions in short :

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- (1) State the use of Schering Bridge.
- (2) State the use of Wein Bridge.
- (3) Define Rectification.
- (4) Define Ripple factor.
- (5) State the efficiency of Half-wave rectifier.
- (6) State the Laplace's equation.
- (7) State the Poisson's equation.
- (8) State the Integral Form of Gauss Law
- (9) State the differential Form of Gauss Law.
- (10) Define the Electric Potential.
- (11) Define Plasma.
- (12) Define Average Life Time.
- (13) Define Threshold Energy.
- (14) Define Ideal Equilibrium.