Printing Page(s) : 1 **Paper Code :DSC-104**

Roll No. | | | | | | | | | | |

B.Sc. (PCM)-4

1st Year Examination, Calendar Batch 2017

Physics-II (Electricity & Magnetism)

Time : 3 Hours] *[Max. Marks : 100*

***Note**. Attempt any **five** questions. Each questions carry equal marks.*

Q.1 Applying Kirchhoff's laws to deduce the condition of balance in a Wheatstone's Bridge.

Q.2 Show that when a dielectric is placed in an electric field, the field within the dielectric is weaker than the original field. Hence show that the dielectric constant of a conductor is infinite.

Q.3 Derive an expression for the magnetic field resulting from a uniformly distributed current I in a long cylindrical wire of diameter d in the regions:

(a) $0 \le r \le \frac{d}{2}$ (b) $\frac{d}{2} \le r \le \infty$.

Q.4 What is Biot-Savart's law? Find out magnetic field due to a current carrying long straight conductor.

Q.5 Describe the principle, construction and working of a transformer. What are the energy losses in it and how we reduce them?

Q.6 State Coulomb's law in electrostatics. Express it in vector form.

Q.7 Explain total internal reflection on the basis of reflection of an E.M. wave at the boundary of two non-magnetic dielectric media.

Q.8 What is displacement current? Show that it is identical to conduction current across a charged capacitor gap?


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