

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN  
(AUTONOMOUS)

(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)

Chromepet, Chennai - 600 044.

B.Sc.Physics - END SEMESTER EXAMINATIONS - APRIL 2025

SEMESTER - V

**22UPHCT5009 - Electromagnetism**

Total Duration : 2 Hrs.30 Mins.

Total Marks : 60

### **Section B**

Answer any **SIX** questions ( $6 \times 5 = 30$  Marks)

1. Derive an expression for the RMS value of an alternating current.
2. Show, how will you determine the self inductance of co-axial cylinders.
3. Classify Inductances in series and Inductance in parallel.
4. Explain Maxwell's equations for integral and differential form.
5. Illustrate the determination of self inductance by Rayleigh's method.
6. Explain about three phase AC generator.
7. Discuss Reactance and impedance.
8. Derive an expression for Gauss's law of electro statics.

### **Section C**

Answer any **THREE** questions ( $3 \times 10 = 30$  Marks)

9. Give the theory of series resonant circuit.
10. Explain mutual inductance of two circuits. Describe absolute method of finding mutual induction between a pair of co-axial coils.
11. Discuss about conducting rod moving through a uniform magnetic field.
12. Describe the principle, construction and working of DC motor.
13. Conclude Hertz experiment for production and determination of electromagnetic waves.

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