B.Sc. DEGREE EXAMINATION,APRIL 2020
III Year V Semester
Electromagnetism

Time : 3 Hours **Max.marks :60**

Section A $(10 \times 1 = 10)$ Marks

Answer any **TEN** questions

1. What do you mean by Q-factor of a series resonant circuit?
2. What is meant by wattles current?
3. Define self inductance of a coil.
4. Define coefficient of coupling.
5. Why does the inductance of a coaxial cylinder not depend on the number N of coils?
6. Why an induction motor sometimes called as rotating transformer?
7. Which part of the motor tells that the given motor is DC and not an AC type?
8. What will happen if the back emf of the DC motor vanishes suddenly?
9. Define displacement current.
10. Define Poynting vector.
11. State the law that determines the direction of rotation of motor.
12. What is the use of the choke coil?

Section B $(5 \times 4 = 20)$ Marks

Answer any **FIVE** questions

13. Power factor of an A.C. circuit is 0.5. What will be the phase difference between voltage and current in the circuit?
14. State Faradays law of electromagnetic induction.
15. Explain the principle of an AC induction motor.
16. What are the differences between DC dynamo and DC motor?
17. State the Maxwells equation in material media.
18. List out the uses of Eddy currents.
19. Three inductors of 60mH, 120mH and 75mH respectively, are connected together in a parallel combination with no mutual inductance between them. Calculate the effective inductance of the parallel combination in mill henries.

Section C $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. Obtain an expression for peak, average and RMS values of AC voltage and current.
21. Explain how will you determine self inductance by Rayleigh's method?
22. Describe the construction and working of single phase motor with neat diagram.
23. Explain the construction and working of shunt wound dynamo with neat diagram.
24. Obtain the wave equation for the E and B vectors in free space.

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