I B.E. (EI &Mechanical)
Class Test II November 2023
Subject: 2EIRC4, Subject Name: Electrical Engineering

Duration: 70 min **Max Marks: 20**

Note: Attempt any four questions.

Q1 A resistance of 24 Ω a capacitor of 150 μF and an inductive of 0.16 H . are connected in series with each other. A supply of 240 V, 50 Hz is applied to the ends. Calculate (a) the current in the circuit (b) the potential difference across each element (c) Resonant frequency. 5

Q2 A iron ring of 200 cm mean circumference is made from round iron of cross section 10 cm^2. Its permeability is 250. If it is wound with 200 turns, What current would be required to produce a flux of 0.001 wb? 5

Q3 What is a Transformer? Derive EMF equation of Transformer. 5

Q4 A 20KVA Transformer has 300 turns on the primary and 50 turns on the secondary winding. The primary is connected to 2000 V , 50 Hz mains Calculate (a) primary and secondary currents in full load (b) secondary emf (c) the maximum flux in the core, neglect magnetic leakage resistance of the winding and the primary no load current in relation to the full load Current. 5

Q5 A 10 KVA , 200/400 V , 50 Hz , single phase transformer gave the following test results 5
Open circuit test - 200 V , 1.5 A , 140 W on low voltage side
Short circuit test - 25 V , 20 A , 250 W on high voltage side
Calculate (a) Magnetising current at normal voltage and frequency (b) Obtain the efficiency when the transformer is supplying rated load 0.9 power factor lagging.

B.E. I Yr. (E&TC – A & B section)
Mid Test-II Date- 10/01/2023
Sub: Electrical Engineering (2EIRC4)

Time: 70 min

Note: All questions carry Equal marks. Assume suitable data if required.

1. Explain B-H curve with along with Coercive force and residual magnetism and what is its significanc
2. A steel ring of 25 cm mean diameter and of circular section 3cm in diameter has an air gap of 1.5 mm uniformly with 700 turns of wire carrying a current of 2 A. Calculate (1) MMF (2) flux density (reluctance (5) Relative permeability of the ring. Assume that iron path takes 35% of the total MMF.
3. A 200 KVA, 11000/230 V, single phase transformer gave following test results: No load test at 1600W,
   Short circuit test at rated current, Wsc = 2600W. Calculate its all day efficiency with below load cycl
   200KVA, 0.8pf, 8hours
   100KVA,unity pf, 6 hours
   No load, 10 hours.
4. A resistance of 20Ω and inductance of 0.2H and capacitance of 100μF are connected in series acros Determine the following: Impedance, current, voltage across R,L,C, power in watts and p.f. and angl