

FACULTY OF ENGINEERING
B.E. (EEE/EIE/CSE/CME/DS) II – Semester (AICTE) (Backlog) (New) Examination,
February/ March 2023

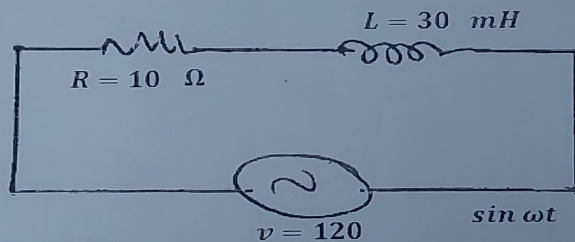
Subject: Basic Electrical Engineering

Time: 3 Hours

Max. Marks: 70

- Note:** (i) First question is compulsory and answer any four questions from the remaining six questions. Each Question carries 14 Marks.
(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed.

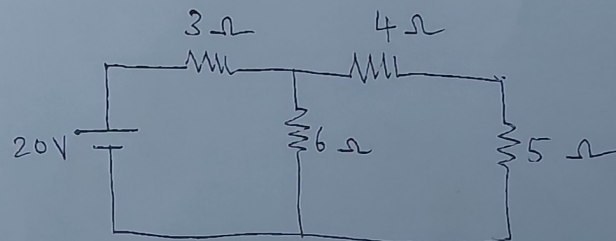
1. (a) State Kirchhoff's laws.
(b) Given $R = 10 \Omega$, $L = 5 \text{ mH}$ what is the power factor?
(c) Why stator core of a 3-phase induction motor is laminated?
(d) Why single phase induction motors are not self-starting?
(e) What is the function of fuse?
(f) What is the speed and slip of 400 V, 3- Φ , 4 pole, 50 Hz induction motor, consider rotor speed is 1000 RPM?
(g) Why transformer cannot be given dc supply?
2. (a) In a 50 kVA transformer the iron loss is 500 W, full load copper loss is 800 W. Find efficiency at full load, half load and maximum efficiency at 0.8 lag.
(b) Explain in brief about losses in Transformer?
3. (a) Write about constructional details of DC Machine?
(b) Write in brief about application of DC generator and motor?
4. (a) For the circuit shown below, determine current and real power supplied? Input current lags the supply voltage by 50° .



- (b) Derive the rms and average voltage values of pure sine wave?

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5. (a) Write a short notes on MCB and MCCB.
(b) Explain in brief about battery types?
6. (a) Explain in brief about any two 3 phase transformers connections?
(b) Explain Magnetization Characteristics of DC generator?
7. (a) State and explain Thevenin's theorem?
(b) Calculate current flow in $5\ \Omega$ resistor using Norton's theorem, for the circuit shown below?



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