S.No. : 273

NEE 4101/4201

No. of Printed Pages : 05

Following Paper ID and Roll No. to be filled in your Answer Book.

PAPER ID : 43301 Roll No. [redacted]

B. Tech. Examination September, 2025

(Special Carry Over Paper)

BASIC ELECTRICAL ENGINEERING

Time : Three Hours] *[Maximum Marks : 60*

Note :– Attempt all questions.

SECTION–A

1. Attempt all parts of the following : 8×1=8

   (a) What are linear and non linear elements?

   (b) What is the KVL and KCL?

   (c) Define Q factor.

   (d) What is the RMS value in A.C circuits?

   (e) What is the Faraday's Law?

[P. T. O.

(f) What is the B-H curve?

(g) Define slip in machines.

(h) Define filed winding in D.C. machines.

SECTION–B

2. Attempt any two parts of the following : 2×6=12

(a) What are the different types of sources used in electrical circuits?

(b) For LCR series circuit drive an expression for resonant frequency, band width and quality factor, prove :

$$\omega_0 = \sqrt{\omega_1 \omega_2}$$

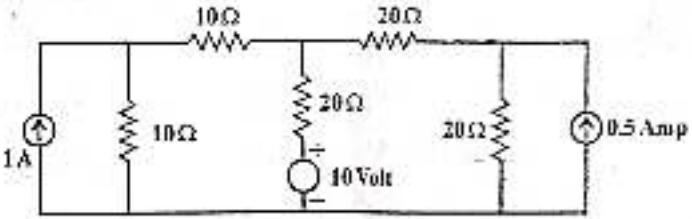
(c) Explain the working of the transformer also derive E.M.F equation of single phase transformer.

(d) Why the synchronous motor is not self starting?

SECTION–C

Note :- Attempt all questions. Attempt any two parts from each questions. 8×5=40

3. (a) Calculate the current in the 20 ohm resistance which is connected in series with 10 volts source, by Thevenin's theorem :



(b) State and prove for maximum power transfer theorem.

(c) Explain star to delta and delta to star transformation with the help of equations.

4. (a) Draw the phasor diagram & find the resultant voltage and RMS Value for the following voltages acting in series :

$V_1 = 100 \sin 500\,t$

$V_2 = 180 \sin (500\,t + \pi/3)$

$V_3 = -50 \cos 500t$

$V_4 = 150 \sin (500t - \pi/4)$ in a single phase A.C. circuit.

[P.T.O.