



VIT

Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

Vellore – 632014, Tamil Nadu, India
SCHOOL OF ELECTRICAL ENGINEERING
FALL SEMESTER 2023-2024
CAT-II

SLOT: F2

Programme Name & Branch: B.Tech. in Computer Science and Engineering and Business Systems

Course Code & Course Name: EEE1001 & Basic Electrical and Electronics Engineering

Faculty Name: Dr. Chaman Lal Dewangan

Class Number: VL2023240107403

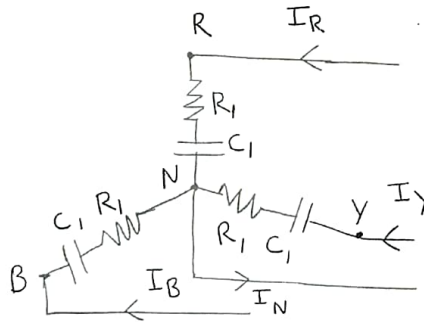
Date of the Examination: 20-Oct-2023, 09:30 AM - 11:00 AM

Duration : 90 minutes

Max. Marks : 50

General instruction(s):

- | Q. No | Question | Marks |
|-------|---|----------|
| 1 | A star-connected three phase load consists of three identical coils each of resistance 15Ω and capacitance 30 mF . If the magnitude of line current is 10 A , for the supply frequency is 60 Hz . What is the power factor of the load? Calculate the phase voltages, line voltages and line currents (represent in phasor form). Draw phasor diagram to represent the phase currents, phase voltages, line voltages and line currents. | 10 marks |
| 2 | Three identical coils, each of resistance 8Ω and inductance 65 mH are connected in delta to a 410 V , 50 Hz , three-phase supply. Determine the total power dissipated. For the given load, if two wattmeter method is used to measure the power consumption what are the readings of two-watt meters? | 10 marks |
| 3 | Number system conversion.
i. BED.495_{16} to Octal
ii. 101101.110_2 to Decimal and Hexadecimal | 10 marks |



8-9

Practice
Learn 3 phase
& 1 phase
Inductor.

Revise

3 phase circuit

See how

iii. 753.54₈ to Decimal

iv. 675.467₁₀ to Binary

- 4 a) Sketch the logic circuit for Boolean expression $F = \bar{A}\bar{B}\bar{C} + \bar{A}B\bar{C} + A\bar{B}\bar{C} + ABC$ and simplify it using Boolean algebra. 5 marks

- b) Simplify the Boolean expression $F = \bar{B}\bar{C}D + \overline{B + C + D} + \bar{B}\bar{C}DE$ using Boolean algebra. 5 marks

- 5 a. i) Convert the given Boolean expression in standard SOP form.

$$f(A, B, C) = \bar{A} + AC + A\bar{B}$$

- a. ii) Convert the given Boolean expression in standard POS form. 5 marks

$$f(A, B, C) = (\bar{A} + B)(\bar{A} + C)$$

- b. Simplify the given Boolean function

$f(A, B, C, D) = \sum m(0, 5, 8, 10, 11, 12, 14, 15)$ using K-map method. 5 marks



BEE