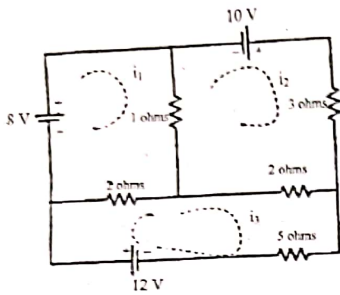


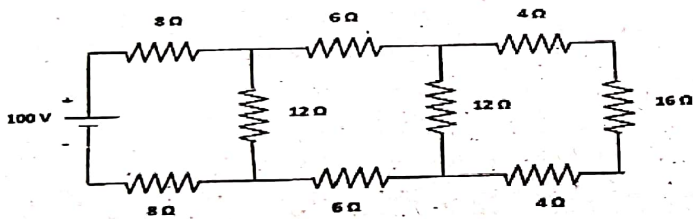
2112E138

BACHELOR OF VOCATION
Automotive Mechatronics
Subject: Fundamental of Electrical
Subject Code: ABEE-102
Semester: Second
December 2021
Theory (External): 35 Marks
Time: 03 hours



circuit (a)

8. Calculate from the given fig(b)
- Equivalent resistance across the terminal of the supply
 - Total current supplied by the source



Fig(b)

==END OF THE PAPER ==

Instructions to the Students

- This Question paper consists of two Sections. All sections are compulsory.
- Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 1 mark.
- Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 5 marks.
- Read the questions carefully and write the answers in the answer sheets provided.
- Do not write anything on the question paper.
- Wherever necessary, the diagram drawn should be neat and properly labelled

Roll Number

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SECTION -A (OBJECTIVE TYPE QUESTIONS)
(10x1=10 Marks)

- A. The unit for inductance is _____
(a) Ohm (c) A/m
(b) Henry (d) A/s
- B. Which among the following is true about ohm's law?
(a) $I \propto V$ (c) $V=IR$
(b) $I=V/R$ (d) All of these
- C. KVL is applied in _____
(a) Mesh analysis
(b) Nodal analysis
(c) Both mesh and nodal
(d) Neither mesh nor nodal
- D. The induced emf in the transformer secondary will depend on
(a) Frequency of the supply only
(b) Number of turns in secondary only
(c) Frequency and flux in core.
(d) Frequency, number of secondary turns and flux in the core.
- E. The resistor has 4 bands, Red, Green, Blue, Gold. Find the correct value?
- F. Instrument used for measuring power is _____?
- G. In a balanced 3 phase star connected system, the relation between phase voltage and line voltage is _____?
- H. Earth wire or ground wire is made up of _____?
- I. The S.I. unit of power is

- (a) Henry
(b) Coulomb

- (c) Watt
(d) Watt-hour

- J. Magnetic circuit breaker has _____ trip action?

SECTION -B (ESSAY TYPE QUESTIONS)
(5x5=25 Marks)

1. Explain Kirchhoff's law in detail with an example? What is the difference between mesh and nodal analysis?
2. Define Cables and explain classification of cables?
3. Define Starter and explain its need? Explain the working star delta starter in detail?
4. A 25 KVA transformer has 500 turns on the primary and 40 turns on the secondary winding. The primary is connected to 3000 V, 50 Hz mains, Calculate
 - i. Primary and Secondary currents in full load.
 - ii. The secondary e.m.f
 - iii. The maximum flux in the core.
5. Derive the relationship between line voltage, phase voltage, line current and phase current in star and delta connection?
6. Explain why synchronous machine is not a self-starting machine? Also explain the construction of Dc generator with appropriate diagram.
7. For the given circuit (a), determine the current in 5Ω resistor.