Reg. No.: _ _ _ _ _ _ _ _ _ _ _ _ _

Amrita Vishwa Vidyapeetham
Amrita School of Engineering, Bengaluru
**B.Tech. Missed Mid Term Exam – December- 2023**
Electrical and Electronics Engineering
First Semester CSE (A, B, C)

# 23EEE104 Introduction to Electrical and Electronics Engineering

Time: Two hours                                                    Maximum marks: 50

| CO | Course Outcomes |
|----|-----------------|
| CO1 | Ability to understand the basic electric and magnetic circuits. |
| CO2 | Ability to analyse DC and AC circuits. |
| CO3 | Ability to understand the basic principles of pn junctions and transistors. |
| CO4 | Ability to analyse basic transistor and opamp based circuits |

**Answer all questions**

Find the form factor   for the given waveform of Fig. 1.          [6]    CO2
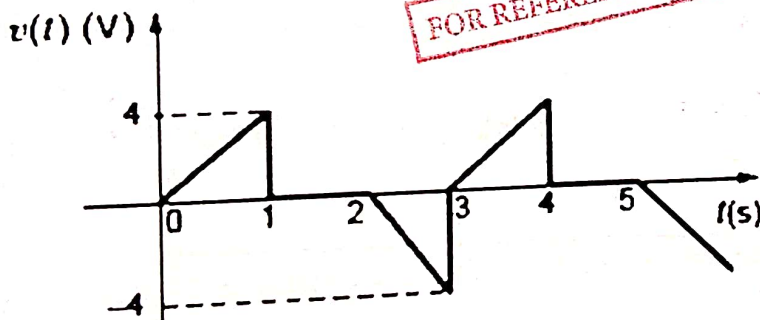                                                                         BTL3



Fig. 1

Find the power dissipated in 8 ohm resistor of the circuit shown in Fig.2    [10]   CO2
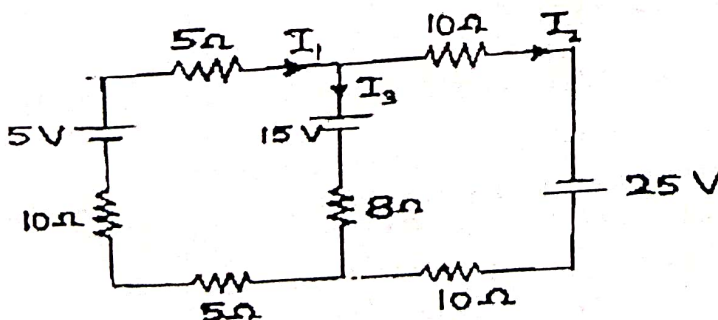using super position theorem                                                        BTL3



Fig.2

Three capacitors of values 8μF, 12 μF and 16μF respectively are connected    [8]    CO1
in series across a 240 V DC supply. Calculate (i) the resultant capacitance          BTL2
and (ii) p.d. across each capacitor  (iii) energy stored by each capacitor

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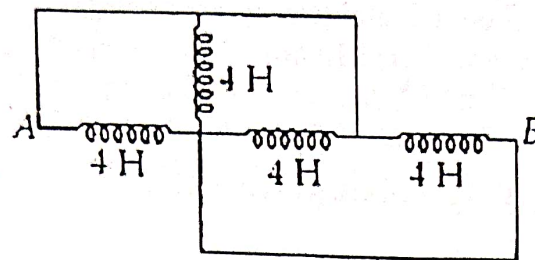4    For the given network in Fig.3 Find the equivalent inductance across AB   [3]



Fig.3

5    An air cored solenoid with a diameter of 1.2 cm and a mean length of 8 [7] cm is wound uniformly with 500 turns. If a current of 10A flows through the coil. Find the (i) Magneto motive force (ii) reluctance of the ring (iii) flux (iv) inductance and (v) induced emf, if the flux falls to zero in 10ms.

6    Find the power dissipated through 2 kΩ resistor in the circuit shown in [8] Fig. 4 using nodal analysis.
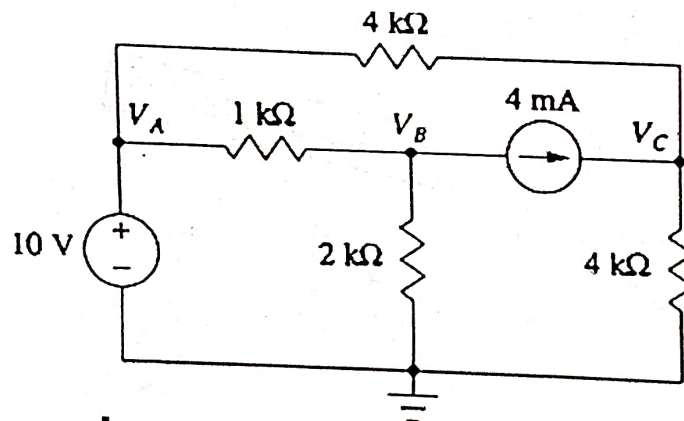


Fig. 4

7.    A resistance of 50Ω and an inductor of 50mH are connected in series . If [8] an alternating voltage of 100V at 50Hz frequency is applied across it, find the current , active power ,reactive power and apparent power and the power factor. Draw the phasor diagram.

## Course Outcome / Bloom's Taxonomy Level (BTL) Mark Distribution Table

| CO | Marks | BTL | Marks |
|-----|-------|-------|-------|
| CO1 | 18 | BTL 1 | - |
| CO2 | 32 | BTL 2 | 19 |
| CO3 | - | BTL3 | 31 |
| CO4 | - | - | - |