Regulation:R20 *Subject code:3P3CB*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A' Grade)

B.Tech III Semester Supplementary Examinations, July 2022

BASIC ELECTRICAL ENGINEERING

(MECHANICAL ENGINEERING)

Maximum Marks: 70 Date:21.07.2022 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

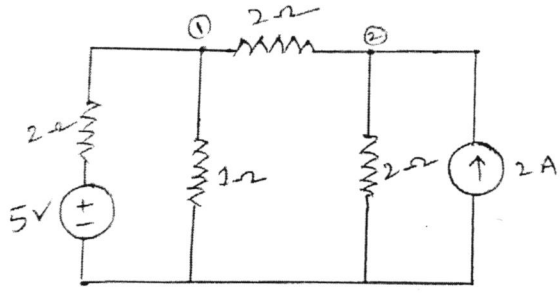
All the following questions carry equal marks (10x2M=20 Marks)

1	Define node and branch.	2 M
2	State Reciprocity theorem.	2 M
3	Define instantaneous value	2 M
4	Discuss the concept of phase and phase difference	2 M
5	Define voltage regulation of a transformer	2 M
6	Explain iron losses of the transformers	2 M
7	State the function of commutator	2 M
8	Define slip in induction motor	2 M
9	What is the importance of Fuse	2 M
10	What are the types of batteries	2 M

Part-B

Answer All the following questions. (10M X 5=50Marks)

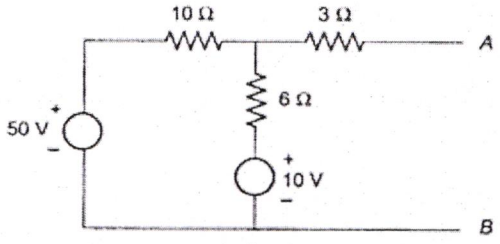
11 Find the current through 1Ω resistor using nodal analysis 10M



OR

12 a) State and explain Thevenin's theorem with suitable example. 5M

b) Find Thevenin's equivalent circuit for the circuit shown below figure. 5M



13	A voltage wave represented by V=200sin314t find i) Maximum value ii) Average value iii) RMS value iv) Frequency v) Time period	10M
	OR	
14	Derive the expression for impedance (Z), phase angle (Θ) and power factor (cosϕ) for RLC series circuit with relevant phasors.	10M
15	a) Derive the Emf equation of transformer. b) A 50KVA, 1100/400 V, 50Hz single phase transformer has 80 turns on the primary. Calculate i) the number of turns on the secondary ii) the full load primary and secondary currents and iii) the maximum value of the flux	5M 5M
	OR	
16	Explain the OC test of a single phase transformer with neat diagram	10M
17	a) Explain the constructional features of DC machine with neat diagram b) Explain working principle of a DC motor?	5M 5M
	OR	
18	Explain the construction and working principle of 3-phase synchronous generator	10M
19	a) Explain briefly the concept of wiring system and earthing b) Explain the types of wires and cables	5M 5M
	OR	
20	Explain about service mains, meter board and distribution board in detail.	10M