



Regulation R20

Subject code: 3P3CB

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech III Semester Supplementary Examinations, February 2024

BASIC ELECTRICAL ENGINEERING

(MECHANICAL ENGINEERING)

Maximum Marks: 70

Date: 19.02.2024 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)

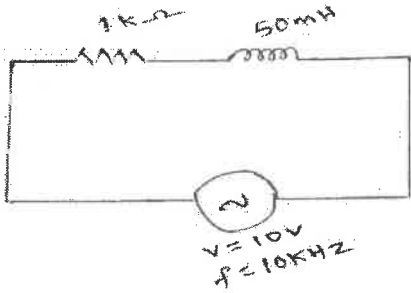
Q.NO	QUESTIONS	Marks	CO	Blooms Tx
1	State Ohm's law.	2 M	CO1	L1
2	State superposition theorem.	2 M	CO1	L1
3	Modify the following rectangular quantities into polar. a) $20+j30$ (b) $5-j10$	2 M	CO1	L6
4	Define frequency.	2 M	CO1	L1
5	Explain the principle of Transformer.	2 M	CO2	L2
6	Explain about self inductance.	2 M	CO2	L2
7	Classify armature windings in DC machine.	2 M	CO3	L2
8	Write the Emf equation of a dc generator.	2 M	CO3	L1
9	Explain the importance of earthing.	2 M	CO4	L2
10	Classify the types of wires.	2 M	CO4	L2

Part-B

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

11	State Kirchhoff's voltage law and Kirchhoff's Current law with suitable example.	10M	CO1	L2
OR				
12	Find the current "I" across load resistor R_L using thevenin's theorem	10M	CO1	L3

The circuit diagram shows a 20V DC voltage source connected in series with a 10Ω resistor. This is followed by a parallel branch containing a 10Ω resistor. After the parallel branch, there is a series combination of a 5Ω resistor and a load resistor $R_L = 5Ω$. The current I is indicated as flowing through the load resistor R_L .

13	Derive the expression for average value, Form factor and Peak factor of sinusoidal waveform.	10M	CO1	L5
	OR			
14	For the given series RL circuit find 1) Impedance 2) Current 3) Phase angle 4) Voltage across R,L. 	10M	CO1	L3
15	Explain the SC test of a single phase transformer with neat diagram	10M	CO2	L2
	OR			
16	Explain the construction and working principle of Ideal and Practical transformer	10M	CO2	L2
17	Explain Back Emf of dc motor. Derive the torque equation of DC motor?	10M	CO3	L3
	OR			
18	Explain the construction and working principle of 3-phase induction motor.	10M	CO3	L2
19	Summarize the function of circuit breaker and describe about MCB and MCCB.	10M	CO4	L2
	OR			
20	Classify the types of batteries and mention the important characteristics of batteries.	10M	CO4	L2