

**MCT**  
 MANJARA CHARITABLE TRUST  
 RAJIV GANDHI INSTITUTE OF TECHNOLOGY, MUMBAI  
 Department of Applied Sciences & Humanities

**INTERNAL ASSESMENT BEEE (IA) - II**

Date: -  
05/12/2024

Max. Marks: 20

Duration: 1 hrs

Class: FE

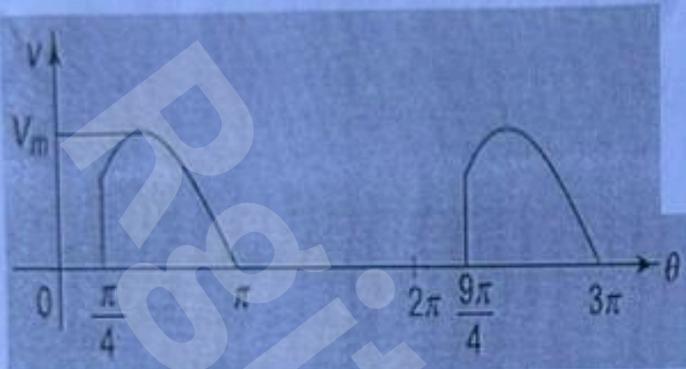
Name of the Course: Basic Electrical and Electronics Engineering

Branch: All

**Instructions:**

1. Question 1 is compulsory for 10 Marks ( 5 questions of 2 marks)
2. From Question 2 (Solve any one )
3. From Question 3 (Solve any one )
4. Figures to the right of the question indicate full marks.
5. Assume the suitable data wherever necessary.
6. Illustrate your answers using neat diagrams wherever necessary.

Questions	Maximum Marks	Bloom's Taxonomy Level	Course Outcomes
Q1. i. A coil having a resistance of $20 \Omega$ and inductance of $0.2 \text{ H}$ is connected across a $230 \text{ V}$ , $50 \text{ Hz}$ supply. Calculate circuit current and power factor.	2	3	CO2
Q1. ii. Three identical coils each of $(4.2 + j 5.6)$ ohms are connected in star across a $415 \text{ V}$ , 3-phase $50 \text{ Hz}$ supply. Calculate $V_{ph}$ and $I_{ph}$ .	2	3	CO2
Q1. iii. An alternating current takes $3.375 \text{ ms}$ to reach $15 \text{ A}$ for the first time after becoming instantaneously zero. The frequency of the current is $40 \text{ Hz}$ . Find the maximum value of the alternating current.	2	2	CO2
Q1. iv. Compare core type and shell type single phase transformer.	2	1	CO3
Q1.v. Write the classification of DC motor.	2	1	CO4

<p>Q2. A Calculate the average and rms value of the waveform shown in fig.</p>	<p>5</p>	<p>3</p>	<p>CO2</p>
			
<p>OR</p>			
<p>Q2. B. A 415 V, 50 Hz, three-phase voltage is applied to three star-connected identical impedances. Each impedance consist of a resistance of <math>15 \Omega</math>, a capacitance of <math>177 \mu\text{F}</math> and an inductance of <math>0.1</math> henry in series. Find power factor, phase current, line current, active power and reactive power</p>	<p>5</p>	<p>2</p>	<p>CO2</p>
<p>Q3. A. Explain in detail working principle of single phase transformer.</p>	<p>5</p>	<p>2</p>	<p>CO3</p>
<p>OR</p>			
<p>Q3. B. Draw and explain the construction and operation of BLDC motor.</p>	<p>5</p>	<p>2</p>	<p>CO4</p>