MANJARA CHARITABLE TRUST

RAJIV GANDHI INSTITUTE OF TECHNOLOGY, MUMBAI

Department of Applied Sciences & Humanities

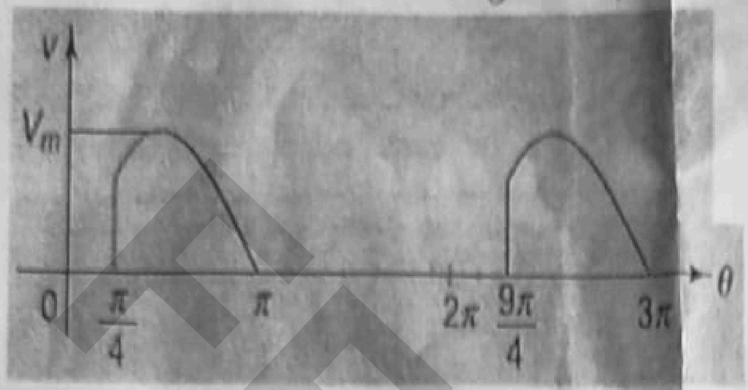
INTERNAL ASSESMENT BEEE (IA) - II

Date:-04/12/2025

Max. Marks: 20
Class: FE **Duration: 1 hrs**
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 voltage of 150 V, 50 Hz is applied to a coil of negligible resistance and inductance 0.2 H. Write the time equation for voltage and current.. 212.13 sin(314.16t) 3.37 sin(314.16t - 90°)	2	3	CO2
Q1. ii. Three identical coils each of (4.2 +j 5.6) ohms are connected in star across a 415 V, 3-phase 50 Hz supply. Calculate V_{ph} and I_{ph}. 239.6V 34.23A	2	3	CO2
Q1. iii. An alternating current takes 3.375 ms to reach 15 A for the first time after becoming instantaneously zero. The frequency of the current is 40 Hz. Find the maximum value of the alternating current. 20A	2	2	CO2
Q1. iv. Define efficiency of single phase transformer.	2	1	CO3
Q1.v. Explain the concept of slip ring in 3-phase induction motor.	2	1	CO4

Q2. A. Calculate the average and rms value of the waveform shown in fig. 0.271V 0.4767V 	5	3	CO2
OR			
Q2. B. A 415 V, 50 Hz, three-phase voltage is applied to three star-connected identical impedances. Each impedance consists of a resistance of 15 Ω, a capacitance of 177 μF and an inductance of 0.1 henry in series. Find power factor, phase current, line current, active power and reactive power	5	2	CO2
Q3. A. Explain in detail working principle of single-phase transformer.	5	2	CO3
OR			
Q3. B. Draw and explain the construction and operation of DC motor.	5	2	CO4