Question Paper Code: R18A31EE02

R18

ANURAG Engineering College

(An Autonomous Institution)

III B.Tech I Semester Supplementary Examinations, June/July - 2024

ELECTRICAL MACHINES - II

(ELECTRICAL AND ELECTRONICS ENGINEERING)

Time: 3 Hours **Max.Marks:75**

Section – A (Short Answer type questions) (25 Marks)

Answer All Questions

		Course Outcome	B.T Level	Marks
1.	What are the two fundamental characteristics of a rotating magnetic field?	CO1	L1	2M
2.	Explain how the direction of Three phase Induction Motor can be reversed?	CO1	L2	3M
3.	Why starters are necessary for Induction Motor?	CO2	L1	2M
4.	Summarize the methods of speed control of three phase Induction Motor?	CO2	L2	3M
5.	Define Winding Factor?	CO3	L1	2M
6.	Why alternators are rated in KVA and not in KW?	CO3	L1	3M
7.	What are the the conditions for parallel operation of an Alternator?	CO4	L1	2M
8.	Summarize the essential features of a Synchronous Machine?	CO4	L2	3M
9.	Write Universal Motor applications?	CO5	L1	2M
10.	Explain the applications of Synchronous motor?	CO5	L2	3M

Section B (Essay Questions)

Answer all questions, each question carries equal marks. **(5 X 10M = 50M)**

11. A)	Draw and Explain the Equivalent Circuit Diagram of Three phase Induction Motor?	CO1	L3	10M
	OR			
B)	Identify the points of similarities between a Transformer and an Induction Machine? Hence, explain why an Induction machine is called Generalized Transformer?	CO1	L3	10M
12. A)	A 6-pole, 50 Hz, three phase Induction Motor, at what values of slip does the max torque obtain? and a motor has a full load slip of 0.04. The max torque is twice the full load torque.	CO2	L3	10M
	OR			
B)	Discuss the cascade operation of Induction Machines to obtain variable speed?	CO2	L3	10M
13. A)	What is Armature Reaction? Explain the effect of Armature reaction on the terminal voltage of an Alternator at different Power Factor conditions?	CO3	L3	10M
	OR			
B)	List the methods of reducing Harmonics in an Alternator generated voltage?	CO3	L3	10M
14. A)	What is synchronizing power of an Alternator? Derive an expression for synchronizing power between the two alternators connected in parallel?	CO4	L3	10M
	OR			
B)	Generalize the EMF and MMF methods of determination of the regulation of an Alternator?	CO4	L3	10M

15. A)	Analyze the operation of three phase Synchronous motor with neat sketches?	CO5	L3	10M
	OR			
B)	Summarize the advantages of capacitor start Induction Motor over split phase Induction Motor?	CO5	L2	10M