R18

ANURAG Engineering College
(An Autonomous Institution)
II B.Tech II Semester Supplementary Examinations, Jan/Feb-2024
ELECTRICAL MACHINES - I
(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.	Explain how to improve commutation	CO1		2M
2.	What is the purpose of laminating Armature?	CO1		3M
3.	What is critical speed?	CO2		2M
4.	State any three applications of DC Generators	CO2		3M
5.	Which losses of a DC Shunt machine are constant and why?	CO3		2M
6.	Explain why a DC Motor should not be started direct online.	CO3		3M
7.	Define Voltage Regulation of a Transformer?	CO4		2M
8.	Draw the equivalent circuit of a transformer on no load	CO4		3M
9.	What is an Auto Transformer?	CO5		2M
10.	List any 3 advantages of 3-phase transformer over three single phase transformer.	CO5		3M

Section B (Essay Questions)
Answer all questions, each question carries equal marks.   (5 X 10M = 50M)

			Course Outcome	Marks
11.	A)	Explain the construction and principle of operation of DC Generator	CO1	10M
		OR		
	B)	i) Briefly explain the function of Compensating Winding in DC Machine.	CO1	5M
		ii) Explain Commutation Reaction		5M
12.	A)	Explain parallel operation of DC Shunt Generators with neat circuit diagram.	CO2	10M
		OR		
	B)	Explain between internal and external characteristics of DC Generators with neat sketches.	CO2	10M
13.	A)	Explain the need for conducting separation of losses test on DC Machine.	CO3	10M
		OR		
	B)	How 4-point starter is different from 3-point starter. With a neat diagram, explain the construction and working of 4-point starter.	CO3	10M
14.	A)	Discuss the working principle of a single-phase transformer and explain the constructional details	CO4	10M
		OR		
	B)	Explain about core and shell type of Transformers and their relative merits with respect to other.	CO4	10M

15. A) Explain the concept of Scott Connection (3 phase to 2 phase) conversion with a neat circuit diagram?   CO5   10M

OR

B) A balanced 3-phase, 250KW load at 415V and 0.88 PF (lag) is to be supplied from a two – phase 1100v supply. Determine voltage and current rating of each winding of Scott connected transformers and KVA rating of each unit.   CO5   10M