Code - 2015

G. S. Mandal's

Maharashtra Institute of Technology, Aurangabad

(An Autonomous Institute)

END SEMESTER EXAMINATION

Second Year B.Tech (EE) – Feb/Mar-2023

Course Code : EED201 **Course Name : Electrical Machines 1**

Duration : 2 Hrs **Max. Marks : 50** **Date :06 Feb,2023**

Instructions :

i) All questions are compulsory

ii) Assume suitable data wherever necessary and clearly state it

iii) Figures to right indicate full marks

Q. 1	**Answer any five (Marks:10)**				
		Marks	**CO**	**BL**	**PI**
a)	Draw Characteristics of DC Shunt Motors.	2	1,2	1	1.2.1
b)	What are different losses in transformer.	2	1,2	1	2.2.3
c)	Write any 4 applications of Synchro's	2	4	1	1.2.1
d)	Draw transformer equivalent circuit referred to secondary	2	1	1	1.1.1
e)	Define Back pitch and front pitch	2	1,2	2	1.3.1
f)	Write causes of bad commutation	2	5	2	1.2.1
g)	Brief polarity test in transformer	2	1	1	1.1.1
h)	Write significance of back emf in DC motor.	2	4	2	1.1.1
Q.2	Solve both the following a) An 8-pole DC shunt generator with 778 wave-connected armature conductors and running at 500 r.p.m. supplies a load of 12.5 Ω resistance at terminal voltage of 50 V. The armature resistance is 0.24 Ω and the field resistance is 250 Ω. Find the armature current, the induced EMF and the flux per pole. b) Describe phasor diagram of transformer when leakage reactance is considered for capacitive load	4 4	4 4	4 4	3.2.1 3.3.2
Q.3	Solve any one from the following Describe 3 Point starter in detail with its diagram. OR A single phase transformer has 1000 turns on primary and 200 turns on secondary. The no load current is 3amp at a power factor of 0.2 lagging. Calculate the primary current and power factor when the secondary current is 280Amp at a power factor of 0.8 lagging.	8	2,3 1,2,3	3 2	2.3.2 2.3.3
Q.4	Solve both the following a) Derive condition of maximum efficiency of transformer b) Brief low inertia DC motor in detail	4 4	1,2,3 1,2	1 1	1.3.2
Q.5	Solve both the following a) Brief about Permanent magnet DC Motor	4	4,5	3	3.3.2

	b) Discuss Delta Delta connection in 3 phase transformer	4	5	2	2.3.1
Q.6	Solve any one from the following a) Explain construction of DC Machine with all parts	8	4,5,6	4	2.3.1
	OR		5	4	3.2.2
	b) Brief speed control techniques in DC Shunt motor				