PRN:		Course Code :	UAE552

000775

Third Year **B. Tech** Semester Examination Winter 2024

Aircraft Electrical Systems Maintenance

Day and Date: Tue 26 NOV 2024 Max Marks: **100**

Time : 10:30AM To 01:30PM Duration: **03** hrs

Instructions: All questions are compulsory.

			Marks	Bloom's Level	CO
Q.1		**Attempt the following**			
	a)	Define charge particles and describe types of charge particles.	08	2	1
	b)	Two parallel conductors are separated by a distance of 20 mm. Determine the electric field strength if they are fed from a 500 V DC supply.	08	2	1
		OR			
	b)	Explain; i) Coulomb's law, ii) Ampere's law,	08	3	1
Q.2		**Attempt the following**			
	a)	Define battery and describe types of batteries.	08	2	1
	b)	Explain with the help of diagram lead-acid batteries.	08	3	2
		OR			
	b)	Explain common battery defects and their rectification.	08	3	2
Q.3		**Attempt any two from the following**			
	a)	Describe the construction and principle of operation of AC generator.	08	1	2
	b)	Describe the construction and principle of operation of AC motor.	08	3	3
	c)	An alternator is to produce an output at a frequency of 60 Hz. If it uses a 4-pole rotor, determine the shaft speed at which it must be driven.	08	3	3
Q.4		**Attempt any two from the following**			

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a)	Explain the construction and principles of operation of auto transformer.	08	3	3
b)	Describe the construction and principles of operation of magnetic amplifier.	08	3	4
c)	Describe the construction and principles of operation of servo motor.	08	2	4

Q.5 Attempt any Two of the following

a)	Discuss the components of aircraft electrical systems in detail.	09	3	4
b)	Explain the working principles of indicating circuits used in aircraft landing gear systems.	09	2	4
c)	Describe the principle of operation of aircraft fire detection systems.	09	3	5

Q.6 Attempt any Two of the following

a)	Explain the aircraft electrical power distribution system.	09	2	5
b)	Describe construction and working principle of static inverters used in aircraft.	09	3	5
c)	Explain how static inverters, rotary inverters, and transformer rectifier units are integrated into aircraft electrical systems?	09	3	5

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