Reg No.:_____ **00000AE463121903** Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh Semester B.Tech Degree Examination (Regular and Supplementary), December 2020

Course Code: AE 463

Course Name: AEROSPACE & NAVIGATION INSTRUMENTS

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks. Marks

1	a)	What are swept wings?	(4)
	b)	How can cambering affect the lift coefficient?	(4)
	c)	Explain the construction and working of a turbojet engine.	(7)
2	a)	What are the different flight control surfaces in an aircraft?	(8)
	b)	Differentiate between absolute ceiling and service ceiling.	(4)
	c)	Define endurance of an airplane.	(3)
3	a)	How is skin friction drag caused?	(4)
	b)	What is an aerofoil?	(3)
	c)	Discuss about the thrust required and thrust available of an aircraft. How is it related to maximum velocity?	(8)

PART B

Answer any two full questions, each carries 15 marks.

4	a)	What is International Standard Atmosphere?	(5)
	b)	Explain the working of a rate of climb indicator.	(10)
5	a)	What are Altimeters? Differentiate between aneroid and radio altimeters.	(10)
	b)	What is a pitot static system?	(5)
6	a)	How can we use the change in capacitance for measuring the fuel quantity in an aircraft?	(8)
	b)	Explain the working of a monitored gyroscope system.	(7)

PART C

Answer any two full questions, each carries 20 marks.

7	a)	How can we determine the position of an aircraft using GPS?	(10)
	b)	Explain the working of an interferometric fibre optic gyroscope.	(10)
8	a)	Explain the instrumentation part of the VOR receiver.	(10)
	b)	What are MEMS accelerometers? Explain the working of a MEMS accelerometer.	(10)
9	a)	How does an aircraft perform automatic landing?	(10)
	b)	Explain the construction and working of a vibrating beam accelerometer.	(10)

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