Register Number:……..

KUMARAGURU
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B.E DEGREE EXAMINATIONS: NOV/DEC 2023

(Regulation 2018)

Fifth Semester

AERONAUTICAL ENGINEERING

U18AEI5204**:** Aircraft Systems and Instruments

COURSE OUTCOMES

CO1: Interpret the construction and working principle of conventional aircraft systems.

CO2: Illustrate the performance characteristics of various aircraft engine control systems.

CO3: Explain the functions of various types of aircraft instruments and avionics systems.

CO4: Demonstrate the operation of aircraft and engine system.

CO5: Describe the inspection procedure and troubleshooting on aircraft.

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-
PART A (10 x 2 = 20 Marks)
(Answer not more than 40 words)

1.	Compare deicing and anti-icing in the aircraft.	CO1	[K_2]
2.	Define pascal law and how it is related to aircraft hydraulic system.	CO1	[K_1]
3.	Show the typical starting sequence for a turbojet engine.	CO2	[K_1]
4.	List types of aircraft fuel tanks.	CO2	[K_2]
5.	List the types of antennas used in aircraft.	CO3	[K_1]
6.	Name some of the navigation instruments with their functions.	CO3	[K_2]
7.	What is BITE?	CO3	[K_1]
8.	What is aircraft ergonomic layout?	CO3	[K_1]
9.	Write a short note on thrust vectoring.	CO4	[K_2]
10.	What is FBW system?	CO2	[K_1]

Answer any FIVE Questions:-
PART B (5 x 4 = 20 Marks)
(Answer not more than 80 words)

11.	Write the aircraft controls, its movement, axes of rotation and types of stability.	CO1	[K_2]
12.	Draw the schematic diagram of jet engine fuel system.	CO4	[K_2]
13.	With a neat sketch explain the aircraft battery ignition system.	CO2	[K_2]
14.	What are the main characteristics of engine oil?	CO3	[K_1]

15.		Discuss the aircraft display system.		CO4	[K_2]
16.		Draw the block diagram of working of BITE.		CO3	[K_2]

Answer any FIVE Questions:-
PART C (5 x 12 = 60 Marks)
(Answer not more than 300 words)

17.		Brief the operation of aircraft air conditioning and pressurization with the necessary diagram.	12	CO1	[K_3]
18.	a)	Explain with a neat diagram a typical lubrication system for an engine with 3 bearing compartments.	6	CO2	[K_2]
	b)	Illustrate the working of battery ignition system.	6	CO2	[K_2]
19.	a)	With a neat sketch explain the working principle of an auto pilot.	6	CO3	[K_2]
	b)	Compare the navigation methods used in aviation.	6	CO3	[K_2]
20.	a)	What is the use of electrical resistance thermometer? How it works? Explain in detail.	6	CO4	[K_2]
	b)	List the types of basic flight instruments. Explain with a neat diagram, the basic flight instruments which depend on pitot pressure/static pressure for the operation.	6	CO4	[K_2]
21.	a)	Aircraft should have need of FDR and CVI. Give your views.	8	CO4	[K_3]
	b)	What is a gyroscope? What are its uses and applications in aircraft?	4	CO4	[K_2]
22.		Demonstrate the details of failure warning system.	12	CO3	[K_3]

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