



B.E DEGREE EXAMINATIONS: DEC 2022

(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.

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 2 = 20 Marks)
(Answer not more than 40 words)

1.	Name the primary and secondary flight control surfaces.	CO1	[K ₁]
2.	Justify the need of deicing and anti-icing systems in aircraft.	CO1	[K ₂]
3.	Differentiate types of aircraft fuel tanks.	CO2	[K ₁]
4.	Draw the sequence of jet engine starting sequence.	CO2	[K ₃]
5.	Compare AM and FM transmitter	CO3	[K ₂]
6.	Write a short note on digital fly by wire system.	CO3	[K ₁]
7.	Distinguish between thermometer and thermocouple.	CO3	[K ₃]
8.	Define calibrated air speed and Equivalent air speed.	CO3	[K ₁]
9.	Define ergonomic layout.	CO4	[K ₁]
10.	List out the types of display system used in cockpit.	CO4	[K ₁]

Answer any FIVE Questions:-

PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

11.		Demonstrate the working of environmental control system with a neat diagram.	16	CO1	[K ₂]
12.	a)	With a neat sketch explain the aircraft battery ignition system.	6	CO2	[K ₂]
	b)	Describe the typical lubrication system for an engine with 3 bearing compartments with a neat diagram.	10	CO2	[K ₂]

13.	a)	With a necessary diagram, explain the operation of jet engine fuel system.	8	CO2	[K ₂]
	b)	Brief the working principle of FADEC system.	8	CO3	[K ₃]
14.	a)	How does the aircraft autopilot system work?	8	CO3	[K ₂]
	b)	What is the use of electrical resistance thermometer? How it works? Explain in detail.	8	CO3	[K ₂]
15.	a)	Explain the need of FDR and CVI in aircrafts.	10	CO4	[K ₃]
	b)	Brief the significance of thrust vectoring system.	6	CO3	[K ₂]
16.	a)	What are the basic flight instruments? Explain with the neat diagram of the basic flight instruments which depend on pitot pressure/static pressure for the operation.	8	CO4	[K ₂]
	b)	Describe BITE concept with a neat diagram. What are the several kinds of test with BITE?	8	CO4	[K ₃]
