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UG Mechanical 2024-25 PYQP

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2025-05-05

INTRODUCTION TO AIRCRAFT SYSTEMS

Department of Mechanical Engineering – SEAS

SRM UNIVERSITY A.P

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SRM UNIVERSITY – AP, ANDHRA PRADESH

End Term Examination, May 2025

[Question Paper ID: 009145]

Subject : INTRODUCTION TO AIRCRAFT SYSTEMS
Title
Batch : 2022, 2023
Degree : B.Sc., B.Tech.
Branch : CSE, Scie.

Subject : MCE 249
Code
Max Marks : 100
Duration : 3 hours
QP Set : ---

Section-A (5 × 8 Marks = 40 Marks)

Answer **any 5** Questions

Marks BL CO

- | | | | | |
|---|----------|----------|----------|----------|
| 1. Define the followings.
(a) Aerodynamic centre
(b) Mach number
(c) Centre of pressure
(d) Drag and lift
(e) Chord and camber | 8 | 8 | 1 | 1 |
| 2. Explain different types of fuselages and their applications. | 8 | 8 | 2 | 1 |
| 3. Describe the followings
(a) Air breathing engine and non-air breathing engine
(b) V-Type engine
(c) In-line engine
(d) Radial engine
(e) Cambered and symmetric airfoil | 8 | 8 | 2 | 2 |
| 4. Write the application of composite materials and its classification based on material matrix. | 8 | 8 | 3 | 3 |
| 5. Define composite materials and list the name of components of Boeing 777 made of composite materials. | 8 | 8 | 1 | 3 |
| 6. Describe the basic principle of aircraft pneumatic system used in aircraft. | 8 | 8 | 4 | 4 |
| 7. Describe the following basic flight instruments.
(a) Altimeter
(b) Air speed indicator
(c) Heading speed indicator
(d) Turn and slip indicator
(e) Vertical speed indicator | 8 | 8 | 2 | 4 |

Section-B (5 × 12 Marks = 60 Marks)

Answer **all** Questions

Marks BL CO

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|--|-----------|-----------|----------|----------|
| 8. Describe the followings.
(a) Axial flow compressor
(b) Centrifugal compressor
(c) Lift and drag
(d) Angle of attack
(e) Chord and camber | 12 | 12 | 1 | 3 |
| 9. Describe the types of drag acting in an aircraft and explain the drag curve. | 12 | 12 | 4 | 2 |
| 10. Explain the working principles of the following engines, also mention advantages and disadvantages:
(a) Turbojet | | | | |

(b) Turboprop	12	12	3	3
(c) Turbofan				
(d) Turboshaft				
11. Define composite and explain its classification based on reinforcement materials.	12	12	1	4
12. Explain the working principle of hydraulic system used in aircraft and describe the functioning of different components of hydraulic system.	12	12	2	3,4

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