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Third Semester B.E./B.Tech. Degree Examination, June/July 2026



Aircraft Materials and Processes

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M: Marks, L: Bloom's level, C: Course outcomes.*

Module – 1			M	L	C
Q.1	a.	Explain the physical properties of materials with the representation of stress-strain curve.	10	L2	CO1
	b.	Write the classification of materials.	04	L1	CO1
	c.	Explain about the Yield-Strength Determination.	06	L2	CO1
OR					
Q.2	a.	Name the different types of inspection method. Explain them briefly.	08	L2	CO1
	b.	Explain about the types of hardness testing of Aircraft materials.	10	L1	CO1
	c.	Define Tension Test..	02	L1	CO1
Module – 2					
Q.3	a.	Explain about the Sand Casting with neat sketch.	12	L2	CO2
	b.	Explain about Magnesium Alloys and with the difference between cast alloy and wrought alloy.	08	L2	CO2
OR					
Q.4	a.	Describe about the manufacturing process of titanium alloys with flowchart and write its advantages.	12	L2	CO2
	b.	Explain about the Application of Wood in Aircrafts mention its advantages	08	L3	CO1
Module – 3					
Q.5	a.	Write the difference between Ferrous and Non-Ferrous materials give some examples for them.	06	L2	CO2
	b.	Explain about the classification of Steels and write its advantages and disadvantages.	10	L2	CO3
	c.	Define: i) Annealing ii) Tempering	04	L1	CO3

OR					
Q.6	a.	Describe about the maraging steels and its application.	10	L3	CO2
	b.	Explain about the Super Alloys and its importance in Aircraft Applications.	10	L3	CO2
Module – 4					
Q.7	a.	Write the difference between Ceramics and Composites.	04	L2	CO2
	b.	Explain about the modern Ceramic material in the application of Aircraft construction.	10	L3	CO2
	c.	Justify about the Composite material is better than the Ferrous Material.	06	L4	CO2
OR					
Q.8	a.	Define Polymer Composites and explain any one of the process of Polymer Composite	10	L1	CO2
	b.	Explain about the metal matrix composite and its application in Aerospace Industry	10	L3	CO2
Module – 5					
Q.9	a.	Analyze the application of materials in Rockets and Missiles mention its benefits and drawbacks.	10	L4	CO1
	b.	Compare Military Aircrafts and Commercial Aircrafts material applications. Give a justification which is economically good and why?	10	L4	CO2
OR					
Q.10	a.	Define Corrosion and prevention of Corrosion	04	L1	CO1
	b.	Write the difference between Destructive and ND Test. Give one example for each.	06	L2	CO3
	c.	Explain the following: i) X-ray test ii) Eddy current test iii) Acoustic Emission test	10	L2	CO3
