



# CBCS SCHEME

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## Fourth Semester B.E. Degree Examination, Jan./Feb. 2021 Aircraft Material Science

Time: 3 hrs.

Max. Marks: 80

Note: Answer FIVE full questions, choosing ONE full question from each module.

### Module-1

- 1 a. What are the requirements of aircraft materials? Illustrate the application and trends in usage with reference to aircraft structure and engines. (08 Marks)  
b. Explain the material selection criteria for various components in aircraft. (08 Marks)

OR

- 2 a. Discuss about heat resistant steel and its fundamental classes. (08 Marks)  
b. Explain the titanium alloys and its applications. (08 Marks)

### Module-2

- 3 a. Explain the manufacturing processes of super alloys. (08 Marks)  
b. Write a brief note on :  
i) Nickel based super alloys  
ii) Cobalt based super alloys. (08 Marks)

OR

- 4 a. What is carbon-carbon composite? Explain the fabrication processes. (08 Marks)  
b. Write a short note on :  
i) Metal matrix composite  
ii) Polymer matrix composite. (08 Marks)

### Module-3

- 5 a. Outline the characteristics of some of the thermoplasts and therosets. (08 Marks)  
b. List and explain the classifications of polymers. (08 Marks)

OR

- 6 a. Explain the different properties of glass. (08 Marks)  
b. Illustrate some of the aircraft applications of ceramic materials. (08 Marks)

### Module-4

- 7 a. List the different types of wood and explain the process of seasoning. (08 Marks)  
b. Explain the use ablative materials for aerospace applications. (08 Marks)

OR

- 8 a. Explain the different synthetic rubber and give its applications. (08 Marks)  
b. Write a note on fabric covering process. (08 Marks)

### Module-5

- 9 a. List and explain the primary ways to control corrosion. (08 Marks)  
b. List the different types of coatings and explain any two metallic coatings. (08 Marks)

OR

- 10 a. List the classifications of propellants. Explain (08 Marks)  
b. Write a short note on different types of solid propellants. (08 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.