



CBCS SCHEME

15AE45

Fourth Semester B.E. Degree Examination, Aug./Sept.2020 Aircraft Material Science

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. Explain the requirements of Aircraft Materials. (08 Marks)
- b. Explain about the Inspection methods of Aircraft Materials. (08 Marks)

OR

- 2 a. Discuss the importance and applications of magnesium alloys in aircraft structures. (08 Marks)
- b. Explain the classification of Corrosion-Resistant alloys. (08 Marks)

Module-2

- 3 a. Define Super Alloy. Discuss briefly nickel based super alloy and its applications. (10 Marks)
- b. Explain the heat treatment process of super alloys. (06 Marks)

OR

- 4 a. Explain the need for composite materials in aircraft applications. (08 Marks)
- b. Explain metal matrix composites based on aluminium and magnesium based composites for engines. (08 Marks)

Module-3

- 5 a. Explain the properties of ceramics with examples of ceramic materials. (08 Marks)
- b. Explain the classification of plastics based in their reaction to heat and based on their commercial use. (08 Marks)

OR

- 6 a. Discuss about the laminated plate glass and laminated sheet glass. (08 Marks)
- b. Explain the properties and applications of glass and transparent plastics. (08 Marks)

Module-4

- 7 a. Explain the applications of ablative materials in aerospace industry. (08 Marks)
- b. Define Ablation Process. Explain ablative materials composition. (08 Marks)

OR

- 8 a. Explain the types of aircrafts woods and their uses. (08 Marks)
- b. Discuss about the Aircraft Painting process. (08 Marks)

Module-5

- 9 a. Explain the various methods used for corrosion protection. (08 Marks)
- b. Explain the methods employed to prevent corrosion. (08 Marks)

OR

- 10 a. Explain about the materials which are used for rockets and missiles. (08 Marks)
- b. Define Propellant. Explain the desirable properties of the 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.