



CBCS SCHEME

17AE45

Fourth Semester B.E. Degree Examination, July/August 2021 Aircraft Material Science

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions.

- 1 a. Discuss the Inspection methods used in aircrafts and explain ultrasonic Inspection and X-ray Inspection with diagrams. (12 Marks)
b. Write the Carbon steels used in aircraft with its properties and applications in aircraft. (08 Marks)
- 2 a. Explain the Magnesium alloys with 'Al' and 'Zn'. Give its applications. (10 Marks)
b. Explain the following :
i) Muntz metal
ii) Gun metal. (10 Marks)
- 3 a. Briefly explain about the Iron based super alloy. (10 Marks)
b. Discuss about the manufacturing process associated with super alloys and explain powder metallurgy. (10 Marks)
- 4 a. Define Composites and explain its types based on matrix materials. (10 Marks)
b. Draw a neat sketch and explain pultrusion process of composite materials. (10 Marks)
- 5 a. List the properties of plastics and explain its categories. (10 Marks)
b. List the properties of ceramics and explain its classification. (10 Marks)
- 6 a. Write the properties and application of Glass materials. (10 Marks)
b. Discuss the applications of adhesives and sealants in aircraft. (10 Marks)
- 7 a. Give the aerospace applications of ablative materials and super conducting materials. (10 Marks)
b. What is seasoning of wood? Explain different seasoning of woods. (10 Marks)
- 8 a. Explain the terminologies related to fabric with relevant diagrams. (10 Marks)
b. Write the commonly used dopes and its purposes. (10 Marks)
- 9 a. What are the methods to be employed to prevent corrosion and explain Electroplating. (10 Marks)
b. Explain the factors affecting the rate of corrosion. (10 Marks)
- 10 a. Discuss the insulating materials used for Cryogenic engines. (08 Marks)
b. Brief about the types of propellants in details. (12 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.