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17AE45

Fourth Semester B.E. Degree Examination, July/August 2022
Aircraft Material Science

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Name some of the factors that are considered in the selection of Materials for Air frames. (08 Marks)
b. Name different types of Inspection Method. Explain them briefly. (12 Marks)

OR

- 2 a. Define the following : i) Normalizing ii) Quenching iii) Carburizing
iv) Cases hardening. (08 Marks)
b. Describe how yield point of a material can be determined. (12 Marks)

Module-2

- 3 a. Explain CMM. (08 Marks)
b. Describe 3 types of matrixes produce 3 common type of Composites. (12 Marks)

OR

- 4 a. What is Super Alloys? Discuss briefly Nickel based super alloys. (12 Marks)
b. Discuss the growth of composite usage in Aircraft structures. (08 Marks)

Module-3

- 5 a. Define Adhesive and Sealants. Give their application in Aircraft. (12 Marks)
b. Give the typical mechanical and physical properties of Aircraft Quality glass. (08 Marks)

OR

- 6 a. Write the types of Non – Scatterable glass available explain briefly. (08 Marks)
b. Name and explain Transparent Plastic materials commonly used in Aircraft. (12 Marks)

Module-4

- 7 a. Give the Aerospace application of Ablative material and Super Conducting material. (12 Marks)
b. Write a short note on the following : i) Seasoning of wood ii) Plywood. (08 Marks)

OR

- 8 a. Explain the following : i) Ablation process ii) Super conducting. (08 Marks)
b. Name the different types of Aircraft paints. Explain the purpose of painting. (12 Marks)

Module-5

- 9 a. Describe the following :
i) Chrome – pickle treatment ii) Sealed Chrome – pickle treatment. (10 Marks)
b. Explain the Operation of Alodising process. (10 Marks)

OR

- 10 a. List the materials used for Rockets and Missiles. Explain the desirable properties. (12 Marks)
b. Describe the following : i) Strip – biaxial ii) Tubular test. (08 Marks)

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.