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10AE662

Sixth Semester B.E. Degree Examination, Dec.2019/Jan.2020

Aircraft Materials

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting atleast TWO questions from each part.

PART – A

- 1 a. Discuss the general properties of Aircraft Materials. (08 Marks)
b. With neat sketch, explain image and application of materials in Aircraft gasturbine engine. (12 Marks)
- 2 a. Describe following : i) Aluminum Alloy ii) Titanium Alloy. (10 Marks)
b. Define Super Alloy. Write a note on Nikel based and Cobalt based super alloy. (10 Marks)
- 3 a. Write the comparison between Composite and Monolithic materials. (08 Marks)
b. Describe production , properties and application of Carbon – Carbon Composite. (12 Marks)
- 4 a. Define Plastic. List properties and applications. (10 Marks)
b. Explain role of adhesives and sealants in aircraft production. (10 Marks)

PART – B

- 5 a. Define Ablation process. List the ablation materials and applications in aerospace field. (10 Marks)
b. What is Super Conductive Materials? List the applications in Aerospace Industries. (10 Marks)
- 6 a. Explain following material infocus their properties and applications : (10 Marks)
i) Plywood ii) Aircraft woods. (10 Marks)
b. Describe painting process of Aircraft. (10 Marks)
- 7 a. What is Corrosion? Discuss corrosion prevention methods used in Aerospace industries. (10 Marks)
b. Define High energy Materials. List general properties of propellents. (10 Marks)
- 8 Write a short note on following :
a. Ceramic – matrix composite.
b. Cryogenic engines.
c. Seasoning of wood.
d. Heat treatment of Super alloy. (20 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.