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10AE662

Sixth Semester B.E. Degree Examination, June/July 2019
Aircraft Materials

Time: 3 hrs.

Max. Marks:100

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

PART – A

- 1 a. What are the desirable properties of material used for aircraft fabrication? (10 Marks)
b. What are Monel and K-monel materials? (05 Marks)
c. What is smart material? (05 Marks)
- 2 a. What are the designation of Titanium used for aerospace industry and give their properties. (05 Marks)
b. What are the different hardening processes of ferrous metals? (05 Marks)
c. Explain what is natural aging and artificial aging in heat treatment of aluminum alloys. (05 Marks)
d. What is a Super Alloy? Explain the characteristics of Super Alloys? (05 Marks)
- 3 a. What are the advantages of composite material over metallic structure? (05 Marks)
b. What is pre – peg and what is the advantages of it? (05 Marks)
c. What is carbon – carbon composite? (05 Marks)
d. Explain a typical metal matrix composite. (05 Marks)
- 4 a. Describe the characteristics of polymer used in aircraft. (10 Marks)
b. What is silicon film adhesive? (05 Marks)
c. What are the advantages of plastic components in aircraft? (05 Marks)

PART – B

- 5 a. What are Ablative material and where it is used? (10 Marks)
b. What is a super conducting material, where are the applications? (10 Marks)
- 6 Write short notes
a. Factors affecting the strength of a wood joint.
b. What is doping?
c. Types of paint used in aircraft
d. Aircraft paint stripping. (20 Marks)
- 7 a. What are the causes of corrosion and what are the various types of corrosion? (10 Marks)
b. What are the corrosion control methods? (10 Marks)
- 8 a. Explain the insulating material used in cryogenic propellant insulation in Rockets. (05 Marks)
b. Explain what is a uniaxial and biaxial test. (10 Marks)
c. What are the properties of a good liquid propellant? (05 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.