CBCS Scheme

USN | | | | | | | | | | |

15AE45

Fourth Semester B.E. Degree Examination, June/July 2017
Aircraft Material Science

Time: 3 hrs. Max. Marks: 80

Note: ***Answer FIVE full questions, choosing one full question from each module.***

Module-1

1 a. Define the following : i) Normalizing ii) Quenching iii) Carburizing iv) Case hardening. **(04 Marks)**

b. Describe how yield point of a material can be determined. **(06 Marks)**

c. Explain the methods that are commonly used to detect minute surface. **(06 Marks)**

OR

2 a. Describe IADS with example. **(08 Marks)**

b. Illustrate a 3 – D phase diagram for classification of Ti – alloys. **(08 Marks)**

Module-2

3 a. Describe the following : i) Fibre reinforced composites ii) Laminar composites iii) Particulate composites. **(06 Marks)**

b. Why we use PM processing techniques to produce super alloy components? **(04 Marks)**

c. Explain CMM. **(06 Marks)**

OR

4 a. Why Metal – Matrix composites? **(07 Marks)**

b. Describe 3 types of matrixes produce 3 common types of composites. **(09 Marks)**

Module-3

5 a. Briefly explain the characteristics and typical application of plastic materials. **(12 Marks)**

b. Define Adhesive and Sealant. **(04 Marks)**

OR

6 a. Explain different types of non – scatterable glass. **(08 Marks)**

b. Discuss the following : i) Pyralin ii) Plastecele iii) Vinylite iv) Plexiglas and Lucite. **(08 Marks)**

Module-4

7 a. Explain the working of Ablator with neat diagram. **(10 Marks)**

b. Why do we need high fidelity models? **(06 Marks)**

OR

8 a. List various types of Aircraft wood and describe their properties and applications. **(08 Marks)**

b. Explain the purpose of Doping and commonly used Dopes. **(08 Marks)**

Module-5

9 a. Explain the operation of alodizing process. **(08 Marks)**

b. Describe the following : i) Chrome – Pickle treatment ii) Sealed chrome – Pickle treatment. **(08 Marks)**

OR

10 a. List the materials used for rockets and missiles. Explain the desirable properties. **(10 Marks)**

b. Describe the following : i) Strip – biaxial ii) Tubular test. **(06 Marks)**

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