Q.23 What are the safety precautions to be taken while using composite materials?
Q.24 What are various types of threads?
Q.25 What are methods for inspection of threads?
Q.26 How is heat sensing done?
Q.27 What material is used in signal sensors and why?
Q.28 Describe the various defects found in welding.
Q.29 Write a note on various NDT methods.
Q.30 Write a brief note on Heat Resistive Paints.
Q.31 Describe the method of TIG welding.
Q.32 What are the different types of Reinforcing Fibres?
Q.33 What are the various types of special paints?
Q.34 What is the applications of electroplating in aircrafts?
Q.35 Describe the material used in turbine blades.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 Explain the ways for detection of deterioration in nonmetallic materials. Describe all the nonmetallic components used.
Q.37 Explain the different processes of manufacturing composite materials.
Q.38 Write in detail about the various factors used in selecting the material for important parts of an aircraft.

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5th Sem. / AME

Subject:- Aircraft Material and Material Science - II

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

Q.1 What term refers to reinforcing fibers aligned in a single direction within a composite material?
a) Undirectional b) Bidirectional
c) Hybrid d) Mat

Q.2 Which manufacturing method involves winding continuous fibers onto a rotating mandrel to create composite parts?
a) Compression moulding
b) Vacuum bagging
c) Filament winding
d) Lay-up technique

Q.3 Which of the following is NOT typically considered aircraft hardware?
a) Bearings b) Nuts
c) Rivets d) Hydraulic fluid

Q.4 Which standardization systems are commonly referenced in aircraft hardware?
a) European and Chinese standards
b) Indian, British and American standards
c) Japanese and Russian standards
d) South American and Australian standards

Q.5 What are some common characteristics of spring materials used in aircraft hardware?

a) High strength and resistance to fatigue
b) Low elasticity and brittleness
c) Low strength and high ductility
d) Susceptibility to corrosion and oxidation

Q.6 Which of the following factors is NOT typically considered in the choice of materials for various parts of an aircraft?

a) Weight b) Corrosion resistance
c) Cost d) Color

Q.7 Which type of coating is commonly used for corrosion prevention on aircraft surfaces?

a) Abrasive Resistant Paint
b) Water-based paint
c) Oil-based paint
d) Acrylic paint

Q.8 What are high temperature materials primarily designed to withstand?

a) Extreme pressure
b) Rapid changes in temperature
c) Corrosive environments
d) Mechanical stress

Q.9 What is the main function of signal sensing materials in high temperature environments?

a) To regulate temperature
b) To measure changes in pressure
c) To detect and transmit information
d) To provide structural support

Q.10 What is the primary purpose of non-destructive testing (NDT) in welding?

a) To destroy welded parts for inspection
b) To detect defects without causing damage to the welded part
c) To enhance the appearance of welded joints
d) To reduce the overall cost of welding operations

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 What is warp?
Q.12 What are the filler materials?
Q.13 What is thermoset?
Q.14 Mention two different types of threading of nuts.
Q.15 What is the use of a honey comb structure?
Q.16 What is an epoxy resin?
Q.17 Mention an example of defect in composite materials.
Q.18 Which aircraft components requires welding?
Q.19 What is special about aircraft rivets?
Q.20 What do you mean by heat resistant paint?

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Write a short note on Titanium Alloys.
Q.22 Draw the cross section of a honey comd structure.