

- Q.32 What is the use of strain hardened alloys in aircraft construction ?
- Q.33 Describe composition of various steels.
- Q.34 What are the precautions that needs to be taken to observe storage life of glues ?
- Q.35 How is case hardening done ?

#### SECTION-D

**Note:** Long answer type questions. Attempt any two questions out of three questions.  $(2 \times 10 = 20)$

- Q.36 What are Ferrous and nonferrous materials and their identification tools ? Explain the effect of constituent effect in magnesium and titanium alloys.
- Q.37 What heat treatment of carbon steels is usually done? Explain the heat treatment process of Aluminum rivets.
- Q.38 Describe the process of Normalising, caburising and hardening.

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187741/147741

**4th Sem / Branch : Aircraft Maintenance**

**Subject:- Aircraft Materials and Material Science-I**

Time : 3Hrs.

M.M. : 100

#### SECTION-A

**Note:** Multiple choice questions. All questions are compulsory  $(10 \times 1 = 10)$

- Q.1 Why the wood is used for aircraft construction ?  
a) Abundance  
b) Strength to weight ratio  
c) Workability, low cost  
d) All of the above
- Q.2 Ply wood is \_\_\_\_\_  
a) Contains wooden material  
b) May made  
c) Layered  
d) All of the above
- Q.3 The purpose of dope is not to \_\_\_\_\_.  
a) Increase the durability of fabric  
b) Polish the wood  
c) Tighten and stiff the fabric  
d) Increase life span of skin
- Q.4 Which of the following components of aircraft can be manufactured using magnesium ?  
a) Engine                    b) Wheels  
c) Engine, landing gear d) Landing gear

- Q.5 What is the property of thermoplastic ?  
a) Remouldable      b) Can not be remade  
c) Machining      d) None of the above
- Q.6 Which of the following is not an aircraftwood ?  
a) Spruce      b) Mahogany  
c) Birch      d) Teak
- Q.7 Which of the following is not used in aircraft ?  
a) Neoprene      b) EPDM  
c) Silicon      d) Natural rubber
- Q.8 What is the purpose of Annealing ?  
a) To surface harden  
b) To relieve internal stress  
c) To increase toughness  
d) To finish surface
- Q.9 What are the wheels of a landing gear made of ?  
a) Typical rubber      b) Sensitive rubber  
c) Titanium alloy      d) Thick rubber
- Q.10 Is the standardization of material advantageous ?  
a) No, it is harmful to the aircraft  
b) Only for the wheels of the aircraft  
c) Yes, it is advantageous  
d) It has never been done before

### SECTION-B

**Note:** Objective type questions. All questions are compulsory.  $(10 \times 1 = 10)$

- Q.11 What is a grain defect ?  
Q.12 What is plywood ?  
Q.13 What is the purpose of a dope ?

- Q.14 What are the uses of acrylic in aircraft ?  
Q.15 Why is heat treatment done ?  
Q.16 What is steel ?  
Q.17 Where are reinforcing tapes used ?  
Q.18 How do you define shelf life ?  
Q.19 Where Inconel is used ?  
Q.20 What are heat treatment for aluminum ?
- SECTION-C**
- Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions.  $(12 \times 5 = 60)$
- Q.21 Name all types of woods related to aircrafts ?  
Q.22 Describe the properties and use of wrought aluminum.  
Q.23 What are various types of plastics and their use ?  
Q.24 State the methods used for heat treatment of steel.  
Q.25 What are the various specification requirements of dopes?  
Q.26 Explain the properties of spruce  
Q.27 What are the different types of special paints and their area of application ?  
Q.28 What is the difference between Iron and Steel ?  
Q.29 State the application of sandwich structures in aerospace.  
Q.30 What are the applications of Titanium sponge (Ti6Al4V) alloy ?  
Q.31 Define the term creep and fatigue