

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Summer 2022-23 Examination

Semester: 4**Date: 24/03/2023****Subject Code: 203101267****Time: 02:00 pm to 04:30 pm****Subject Name: Aircraft Materials and Processes****Total Marks: 60****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions - (Fill in the blanks, one word answer, MCQ-not more than Five in case (15)

of MCQ) (All are compulsory) (Each of one mark)

1. What does the word "LATHE" stand for?
2. What is lustrous material?
3. Is pattern differ from casting?
4. Define machine.
5. What is the role of matrix material in composite materials?
6. A match plate is made of
 - a) Stainless steel b) Wood c) Copper d) Teflon
7. Which electrode is used in the process of TIG welding?
 - a) Tungsten b) Titanium c) Tin d) Tellurium
8. Which of the following have a greater impact on longitudinal strength of reinforced composites?
 - a) Fiber orientation b) Fiber strength c) Fiber length d) Fiber diameter
9. Which of the following isn't a main part of rivet?
 - a) Head b) Shank c) Point d) Thread
10. The permanent mode of deformation of a material known as
 - a) Elasticity b) Plasticity c) Slip deformation d) Twinning deformation
11. For cast iron, pattern allowance is% and for aluminium, it is about 1.6%.
12. The thickness of the lamina ranges from to 1 mm.
13. The use of magnesium in modern aircraft and helicopters is typically less than % of the total structural weight.
14. Boeing 737 contains.....% aluminium.
15. The thickness of the sheet metal ranges frommm to 6 mm.

Q.2 Answer the following questions. (Attempt any three) (15)

- A) Write a short note on arc welding defects.
- B) Give the broad classification of composite materials.
- C) Enumerate some common casting defects and explain the reasons which cause these defects.
- D) Write a short note on Glass and Carbon fibre.

Q.3 A) List the properties of the materials and explain them in detail. (07)**B) Explain the working principle of MIG welding process with diagram. (08)****OR****B) Explain the working principle and construction of a shaper machine using a neat sketch. (08)****Q.4 A) With a neat sketch, explain the working principle of the vacuum bag method. (07)****OR****A) Enlist the sheet metal operation and explain any two of its processes. (07)****B) Explain the working principle and construction of a lathe machine using a neat sketch. (08)**