

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Winter 2019 - 20 Examination

Semester: 3

Date: 02/12/2019

Subject Code: 203101207/03101204

Time: 2.00 pm to 4.30 pm

Subject Name: Aircraft Material & 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 (All are compulsory) (Each of one mark) **(15)**

1. The ability of the material to absorb the energy by undergoing plastic deformation is known as _____.
2. The total number of atoms in FCC is _____.
3. Define coordination number.
4. In the Normalizing, the cooling medium is _____.
5. The bonds created by sharing of electrons is known as _____.
6. Which one of the following is not a strong bond?

a) Ionic bond	c) Metallic bond
b) Covalent bond	d) Vander Waals bond
7. Which of the following is corrosive resistant material?

a) Aluminum	c) Carbon
b) Cast Iron	d) Stainless Steel
8. The maximum percentage of the carbon in steel component is

a) 6.67	c) 2.14
b) 4.3	d) 100
9. The coordination number in FCC is

a) 6	c) 9
b) 8	d) 12
10. Which of the following structure is more ductile?

a) SC	c) FCC
b) BCC	d) None of the above
11. Dislocation is one dimensional defect. [True/ False]
12. Differentiate composites and alloys.
13. What is the purpose of alloying?
14. Out of steel and cast iron, which is more ductile?
15. Define unit cell.

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

- A) Calculate the atomic packing fractions (APF) for BCC & FCC
- B) Explain Dye Penetration Test with neat Sketch.
- C) Compare destructive and non-destructive testing.
- D) Write a short note on plain carbon steel.

Q.3 A) Write a short note on Fe – Fe₃C Diagram. **(07)**

- B) Explain various High-Energy rate forming.
- (08)**

OR

- B) Brief about application of various welding process.
- (08)**

Q.4 A) Explain 3 common ways of detecting corrosion. **(07)**

OR

- A) Explain any 3 corrosion prevention method.
- (07)**

- B) classify heat treatment processes. Explain any one of them in detail.
- (08)**