

PSG POLYTECHNIC COLLEGE, COIMBATORE - 641 004

B12304 MATERIALS ENGINEERING

MODEL QUESTION PAPER

Time: 3 Hours

Max. Marks: 100

Instructions:

1. **Group A** and **Group B** questions should be answered in the Main Answer book.
2. Answer any **TEN** questions in **Group A**. Each question carries three marks.
3. Answer **ALL** questions either **(a)** subdivision or **(b)** subdivision in **Group B**. Each question carries 14 marks.

Group – A

Marks: 10 x 3 = 30

1. Draw a neat sketch of Simple cubic structure.
2. Describe amorphous metals.
3. What do you mean by thermoplastics?
4. What are the types of cast iron?
5. Write the application of high carbon steel.
6. Write the composition of white cast iron.
7. Name four alloying elements.
8. Write short notes on alloy steel.
9. Write the properties of high speed steel.
10. Discuss about the application of magnesium.
11. Write the composition of aluminium alloys.
12. Name four copper alloys.
13. What are the different heat treatment processes?
14. What is annealing?
15. Write any two examples for hardening.

Group– B

Marks: 5 x 14 = 70

16. a) i] What are the difference between crystalline and amorphous material? (7)
ii] Explain with a neat sketch about HCP structure. (7)
(OR)
b) i] Difference between thermoplastics and thermosetting plastics (7)
ii] Write the properties and application of ceramics (7)
17. a) Write the composition and application of grey cast iron and malleable cast iron
(OR)
b) How is steel classified? Explain the composition and uses of High carbon steel?

18. a) Explain about the effect of alloying elements.

(OR)

b) Write the properties and applications of stainless steel.

19. a) Explain the properties and application of aluminium alloys.

(OR)

b) Explain the various properties and uses of copper alloys.

20. a) Explain the purpose and application of various Heat treatment processes.

(OR)

b) Explain the heat treatment of High carbon tool steels and high speed steels.

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