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Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (AE) (2018 Batch) (Sem.-3)

**AUTOMOTIVE MATERIALS**

Subject Code : BTAE305-18

M.Code : 76403

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A**

Answer briefly :

1. How composites are classified?
2. What is chemical hardening?
3. What do you understand by 'Anodizing'?
4. Discuss the advantage of ceramic matrix composites.
5. What do you need by Particulate reinforced composites?
6. Name two composites used for aerospace applications.
7. What is recrystallisation temperature?
8. How the fracture in glass is different from metals?
9. What material used for manufacturing of automotive cylinder head and why?
10. What is 'Electroplating'?



**SECTION-B**

11. What are Polymer matrix resins? Explain the following PMC processes in detail :
  - a) Hand lay-up process
  - b) Spray up process
12. With the help of neat sketch explain the filament winding process for the manufacture of composite components. What kinds of shapes are produced by this process?
13. Discuss the properties of alloys of aluminum and write their applications.
14. What is recrystallisation temperature and how it affects the properties of materials.
15. Discuss the criteria for selection of materials for automotive 'Piston'.

**SECTION-C**

16. Discuss the following heat treatment techniques :
  - a) Normalizing
  - b) Tempering
17. What is Polymer? How does the structure of Polymer different from that of a metal? Discuss.
18. Write a short note on thermal spraying.

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**