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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (AE) (Sem.-3rd)

**AUTOMOTIVE MATERIALS**

Subject Code : BTAE-305 (2011 Batch)

Paper ID : [A1155]

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTION 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 has to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.

**SECTION-A****1. Write briefly :**

- a) What are engineering materials?
- b) What are ceramics?
- c) What is an alloy steel?
- d) What do you understand by recrystallization temperature?
- e) What are different types of annealing?
- f) What is fiber glass?
- g) What is a polymer?
- h) What is a composite material?
- i) What is flame hardening?
- j) What do you understand by phosphating?

### **SECTION-B**

2. Discuss the effects of alloying elements in properties of steel.
3. What are the factors affecting the selection of material for automobile manufacturing? Discuss.
4. Discuss the nature of ceramic material.
5. Differentiate between thermoplastic and thermosetting plastic materials.
6. Discuss the advantages and limitations of carbon matrix.

### **SECTION-C**

7. What are various types of fibers? Explain in brief the manufacturing process of fiber reinforced composites.
8. Discuss any surface hardening technique used in automotive industry.
9. Write a note on metal matrix composites.