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Total No of Pages-01

**Examination May –2014**  
**Automotive Materials**  
**Paper Code (BATE-305)**  
**Paper Id. [D1155]**

Time : 3 Hrs

Maximum Marks: 60

**Instruction to Candidates**

Section-A is compulsory, Attempt any four from section-B, and any two from Section-C.

**Section-A**

(10x2 =20 Marks)

**Que. 1. Attempt all questions.**

- a) List various alloying elements in stainless steel.
- b) What is re-crystallization temperature?
- c) List important properties of ceramics.
- d) Why vulcanization of rubber is required?
- e) Define thermosetting plastics with examples and application.
- f) What type of fiber reinforcements are done in PMCs.
- g) Ware monolithic ceramics?
- h) State benefits of carbon/carbon composite materials.
- i) State the need of heat treatment of steel.
- j) What do you mean by cryogenic wear.

**Section-B**

(4x5= 20 Marks)

Attempt any 4 questions.

- Que.2.** Discuss the effect of various alloying elements on low alloy steels.
- Que. 3.** Discuss various factors affecting selection of materials for axle and bearings.
- Que. 4.** Discuss the effect of reinforcement in composite materials.
- Que. 5.** Discuss need and types of coating for enhancing wear and corrosion resistance.
- Que. 6.** Discuss various types of metal matrix composites used in automobiles.

**Section-C**

(10x2 =20 Marks)

Attempt any 2 questions

- Que. 7.** Classify engineering materials. State desirable mechanical, thermal and electrical properties of materials.
- Que. 8.** Discuss in detail following heat treatment processes hardening and tempering. .
- Que. 9.** Discuss any two surface hardening techniques with objectives. List their applications also.

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