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BIME-012

B.Tech. MECHANICAL ENGINEERING (BTMEVI)

00584

Term-End Examination

June, 2014

BIME-012 : AUTOMOBILE ENGINEERING

Time : 3 hours *Maximum Marks : 70*

Note : *(i) Answer **any five** questions.*
*(ii) **All** questions carry **equal** marks.*
(iii) Assume missing data if any.

1. (a) Make a classification of automobiles from different aspects. Quote examples of each basis of their classification. 7

   (b) Write the history of development of automobiles. Discuss the present status and future scope of them. 7

2. (a) Enumerate various kinds of power units employed to run automobiles. Discuss the suitability in different situations. 7

   (b) Explain different components of the power unit of an automobile giving some examples. 7

3. (a) Name different types of steering systems used in automobiles. How do they differ in their simplicity or complexity ? Explain in brief. 7

   (b) What are the two objectives of employing a suspension system on any automobile ? Discuss the roles of springs and shock absorbers in it. 7

4. (a) What do you mean by transmission system in an automobile ? Mention the different components of a transmission system, along with their purpose. 7

(b) Explain the working of a gear box, with neat sketch. 7

5. (a) Explain the construction of a front axle with neat sketch. State the kinds of loads experienced by it and the provisions made there into sustain them. 7

(b) Classify different types of brakes from different considerations, with examples of each. 7

6. (a) Sketch a layout of lighting circuit suitable for a modern car and explain its working in brief. 7

(b) Describe various methods of battery charging. What are the indications of a fully charged battery ? 7

7. (a) Discuss various electrical accessories used in automobiles along with their purpose in brief. 7

(b) What are the different types of batteries used in automobiles ? Explain in brief. 7

8. Write short notes on **any four** of the following : **3½x4=14**

(a) Power Steering
(b) Differentials
(c) Four Wheel Drive
(d) Pneumatic Brakes
(e) Formula Cars
(f) Power Windows