BIME-012

B.Tech. – VIEP – MECHANICAL ENGINEERING (BTMEVI)
Term-End Examination
June, 2018

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BIME-012 : AUTOMOBILE ENGINEERING

Time : 3 hours *Maximum Marks : 70*

Note : *Answer any **five** questions. All questions carry equal marks. Use of scientific calculator is permitted.*

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1. (a) What are the factors considered while selecting a power unit in a vehicle ? Differentiate between C.I. and S.I. engines. 7

    (b) List the main components of an automobile. Describe any two of them in brief. 7

2. (a) What is Perfect Steering ? Explain the Ackermann steering mechanism in detail. 7

    (b) Why is power steering provided in an automobile ? With the help of a neat sketch, explain the working of a power steering system. 7

3. (a) Why is cooling needed in an I.C. engine ? Describe in brief, the cooling systems in an I.C. engine. 7

    (b) Discuss the functions of gear box in automobiles. 7

4. (a) What is the function of an Axle ? With suitable diagram, explain its working. *7*

(b) Discuss the functions of a front rigid axle. Describe various types of stub axles. *7*

5. (a) Compare pneumatic brakes with hydraulic brakes. Explain the working of any one in brief. *7*

(b) What is a limited slip differential ? How is it different from a conventional differential ? *7*

6. (a) Why are batteries used in an automobile ? How are their capacities specified ? Describe the charging procedure of an automotive battery. *7*

(b) What are the different types of suspension systems used in automobiles ? Explain any one suspension system with a properly labelled diagram. *7*

7. Write short notes on any *two* of the following : *7+7*

(a) Lighting System in Automobiles

(b) Preventive Maintenance for Smooth Operation of a Vehicle

(c) MPFI System