No. of Printed Pages : 3

BIME-012

B.Tech. – VIEP – MECHANICAL ENGINEERING (BTMEVI)

Term-End Examination

00651

June, 2019

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.*

1. (a) Explain briefly, the various parts of an automobile (four-wheeler) with the help of a neat sketch. 7

(b) State the differences in the knocking phenomena of S.I. and C.I. engines. Enlist various methods of controlling knocking in a diesel engine. 7

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

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

3. (a) What are the requirements of a good steering system ? Discuss the different steering systems, with their relative advantages and disadvantages. 7

(b) What do you mean by a Power Transmission System ? Mention the different components of a transmission system along with their purpose. 7

4. (a) Explain the working of a synchromesh gear box. What are its merits and demerits as compared to constant mesh gear box ? 7

(b) What is the principle of working of a torque converter in an automobile ? Discuss its advantages and disadvantages. 7

5. (a) Discuss the classification of brakes for vehicles. Describe any one type of mechanical brake with a neat sketch. 7

(b) What are the different types of batteries used in automobiles ? Explain any one of them with a neat sketch. 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. Write short notes on any ***four*** of the following : $4 \times 3\frac{1}{2} = 14$

(a) Air-conditioning in Automobiles

(b) Eco-friendly Vehicle

(c) Power Windows

(d) Suspension Systems

(e) Maintenance of Batteries

(f) IC Engine