Roll No. ..... Total Pages : 03

BT-7/D-14 **8751**

AUTOMOBILE ENGINEERING

ME-401-E

Time : Three Hours] [Maximum Marks : 100

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks. Assume any missing data.

Unit I

1. (a) What do you mean by Multi Point Fuel Injection System ? What are its advantages ? **10**

(b) Describe how firing order and mechanical balancing is managed in Multi Cylinder I.C. Engine. **10**

2. (a) What are centrifugal devices ? Describe semi-centrifugal and fully centrifugal clutches. **10**

(b) Describe briefly an electromagnetic clutch. Discuss the merits and demerits of this type of clutch. **10**

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Unit II

3. (a) Describe in detail various types of gear selector mechanisms used in automobiles. Discuss also the advantages and disadvantages of each and state what the modern trend is ? **10**

(b) Write a brief note explaining how the lubrication of automotive gear box is done. **10**

4. (a) Explain with the help of neat sketch the construction of a propeller shaft. **10**

(b) Explain the necessity of differential in an automobile. Discuss in detail the construction and operation of the differential. **10**

Unit III

5. (a) Describe in detail the constructional features of the tubed and the tubeless tyre for automotive use. Discuss also their relative merits and demerits. **10**

(b) What is a 'self-initiating tyre' ? Describe in detail any such tyre-inflatation system in use. Explain also improved system under development. **10**

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6. (a) Explain in detail the necessity and principle of working of an antilock brake system. Describe its main components and discuss its various types of such system in use. 10

   (b) Explain the working of Mac Pherson strut type of suspension. 10

Unit IV

7. Explain the term : camber, castor, steering axis inclination and toe-in. What are the effects of each on the steering characteristics of a vehicle ? 20

8. (a) Explain the working of catalytic convertor with the help of neat sketch. 10

   (b) Write a short note on Rack and Pinion Steering System. 10