

Roll No.

Total Pages : 03

BT-7/D-19

37055

AUTOMOBILE ENGINEERING
ME-401E (Group I)

Time : Three Hours]

[Maximum Marks : 100

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit.

Unit I

1. Differentiate between the S.I. Engine and C.I. Engine. Describe in detail firing order, power balancing, power overlap and power flow charts related with IC engines. 20
2. Write short notes on the following :
 - (a) Multipoint Fuel Injection System.
 - (b) Microprocessor based fuel supply system. 20

Unit II

3. (a) Explain the construction, working and application of Torque converter employed in modern vehicles.

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- (b) Describe briefly various types of gear selector mechanism used in automobile. Explain clearly how it is made sure in gear box that at no time two gears are engaged simultaneously. Illustrate your answer by means of neat sketch of an interlocking device. 20

4. Explain the necessity of a differential in an automobile. Discuss briefly the construction and operation of the differential. Also explain with the help of neat sketch, the construction of propeller shaft and constant velocity joint. 20

Unit III

5. Discuss the various functions performed by an automobile tyre. Draw cross-section of an automobile tyre and show on it various constructional features. Explain clearly the requirement of automobile brakes. Discuss various factors influencing braking effect. 20
6. What are the different types of rear and suspension ? How does a rigid axle front and suspension differ from an independent front end suspension ? Explain the functioning of independent front wheel suspension system with torsion bar in an automobile. 20

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Unit IV

7. Explain clearly how the King-Pin inclination produces directional stability ? Explain the Ackermann Steering Mechanism. Write its relative merits. 20
8. What are the advantages and disadvantages of use of alternate fuels in automobiles ? What are the main pollutants from the engine exhaust and mention its effect on the living organisms ? 20