

Roll No.

Total Pages : 02

BT-7/M-20

37055

AUTOMOBILE ENGINEERING

ME-401-E (Opt. I)

Time : Three Hours]

[Maximum Marks : 100

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. Assume suitable data, if missing.

Unit I

1. Differentiate between *Microprocessor* based fuel supply system and *conventional fuel injection* systems with the important features and different elements of each. **20**
2. (a) Explain the working of a centrifugal clutch with a suitable sketch. **8**
(b) What is the necessity for clutch assembly in transmission system and explain the construction and working of a single plate clutch. **12**

Unit II

3. (a) Draw and explain with a simple sketch, working of a constant mesh gear box. **10**

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- (b) Describe the working of *differential* with the help of a neat sketch. **10**
4. Write a note on *back axle*, including *Hotchkiss Drive* and *Springs* serving as torque thrust member. **20**

Unit III

5. (a) Explain the working of *drum brake*. **10**
(b) Write a note on *power operated brakes*. **10**
6. What are the different types of suspension systems ? Give constructional and working details of each in brief. **20**

Unit IV

7. (a) Define *castor*, *camber*, *toe in* and *toe out* with the help of neat sketches. **10**
(b) With the help of a schematic diagram, explain Ackerman steering mechanism. **10**
8. Explain the national and international emission standards of Bharat stage-VI engines. Also, explain the different methods of emission control in engines. **20**