

BT-7/M-21**47055****AUTOMOBILE ENGINEERING****Paper–ME-401E**

Time Allowed : 3 Hours]

[Maximum Marks : 100

Note : Attempt **five** questions in all, selecting at least **one** question from each Unit. Each question carries 20 marks.

UNIT–I

1. (a) Describe in brief Clutch lining and Friction materials used in Friction Clutches. 10
- (b) Explain in detail MPFI with regards to I.C. Engines. 10
2. Write short notes on the following : 4×5=20
 - (a) Cone clutch.
 - (b) Electromagnetic clutches.
 - (c) Different components of Transmission systems.
 - (d) Overhead cam shaft.

UNIT–II

3. (a) Discuss in detail variation of Tractive effort with Speed. 5
- (b) Describe in brief Sliding mesh gear box with neat sketch. 5
- (c) Write a note on Multi-clutch type traction control device. 5
- (d) Explain Rubber-bushed flexible joints. 5
4. (a) Differentiate Air, Gradient and Rolling resistance coming across a moving Automobile. 10
- (b) Discuss in brief sliding type and ball type Selector mechanism. 10

UNIT–III

5. (a) Discuss in detail interconnected Air and Liquid suspensions. 10
- (b) Describe in brief different independent Suspension layouts. Also write various advantages of Leaf springs over other Suspension systems. 10
6. (a) What are the functions and methods of Brakes ? Also discuss elementary of Shoe brake. 10

- (b) Explain in detail Servo and Power Operated Brakes. Also write a note on dual power Air Brake System. 10

UNIT-IV

7. (a) Define the following terms with regards to Automobile : 10
- (i) Castor (ii) Camber
 - (iii) King pin inclination (iv) Combined angle
 - (v) Center point steering.
- (b) Write the various aspects of Pollution control in Automobiles. Also discuss in detail double catalytic Converter. 10
8. Write short notes on the following : 4×5=20
- (a) Costarring or Trailing action.
 - (b) Automobiles running on alternative sources of energy.
 - (c) Emission control through Catalytic converter.
 - (d) Stub-axle construction.

