

B.E. Mechanical Engineering Eighth Semester
MR8031 - Elective-II : Automobile Engineering

P. Pages : 2

Time : Three Hours



GUG/W/18/2071

Max. Marks : 80

- Notes :
1. All questions carry marks as indicated.
 2. Answer Q. 1 OR 2, Q. 3 OR 4, Q. 5 OR 6, Q. 7 OR 8, and Q. 9 OR 10.
 3. Use of non-programmable calculators is permitted.

1. a) Define 'an Automobile'. How to classify automobile. Explain the various types of vehicle layout. 8

b) Give the importance of lubrication system in an I. C. Engine. What are the various lubrication system used in I. C. Engine? Explain dry sump lubrication system with neat sketch. 8

OR

2. a) Explain with neat sketch construction and operation of a down draught carter carburetor. 8

b) With neat sketch explain thermostatic controlled water cooling system. 8

3. a) Illustrate the construction and working of a single plate clutch with neat sketch. 8

b) Explain with neat sketch gear selector mechanism. 8

OR

4. a) What are the drawbacks of a sliding mesh gear box? Explain with neat sketch construction and operation of a constant mesh gear box. Also explain how the clashing of dog clutch can be avoided while gear shifting. 8

b) Explain 2WD and 4WD? Explain with neat sketch. The construction and working of transfer case gear box. 8

5. a) Explain with neat sketch construction and working of propeller shaft and universal joint? State the purpose of front and rear universal joints. 8

b) Explain in brief with neat sketches the different types of live rear axles. 8

OR

6. a) Explain the necessity of differential in an automobile. Discuss in detail construction and working of a differential. 8

b) List out the various types of brake system and explain with neat sketch the construction and operation of hydraulic brake system. 8

7. a) Explain with neat sketch construction and working of Recirculating ball type steering gear. 8
- b) What is independent suspension system? Explain its type and state working of any one of them with neat sketch. 8

OR

8. a) Explain the following terms:- 8
- 1) Camber 2) Caster
- 3) King pin inclination 4) Toe – in and Toe-out
- 5) Correct steering angle

What are the effect of each on the life of tyres?

- b) What are the important causes of tyre wear? What are their effects on tyre tread wear? How can they be controlled. 8
9. a) Explain the Battery Ignition system used in automobile with neat sketch. State its salient features. Also define battery capacity. 8
- b) State function of Battery. What are the main components of Battery. 4
- c) How batteries are rated? How lead acid battery is tested? Explain the procedure of testing. 4

OR

10. a) Explain with neat sketch overrunning clutch. Describe with neat sketch the working of starter motor. 8
- b) Explain automobile air-conditioning system in brief. 8
