

B.E. Mechanical Engineering (MODEL CURRICULUM) Semester-VII
OE-4011 - Automobile Engineering

P. Pages : 2

Time : Three Hours



GUG/W/22/14268

Max. Marks : 80

- Notes :
1. All questions carry equal marks.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Diagrams and Chemical equation should be given wherever necessary.
 5. Illustrate your answers wherever necessary with the help of neat sketches.
 6. Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10.

1. a) Define 'an automobile'. Name major components of an automobile. Explain any two of them in brief. 8

b) Draw and explain the various types of general layout of chassis. 8

OR

2. a) What are the safety measures in automobile industry? What is the most important safety factor in any vehicle? What Are the 5 Most Important Safety Features For Cars? 8

b) What's the main function of the Anti-lock Braking System? Working of Anti-lock Braking System. 8

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

b) Explain 2 WD and 4 WD? Explain with neat sketch gear selector mechanism. 8

OR

4. a) What is the use of overdrive in an automobile? Explain its working along with advantages. 8

b) Demonstrate with neat sketch construction and operation of a sliding mesh gear box. 8

5. a) Discuss in detail different methods of supporting live rear axle shafts. Describe also the advantages and disadvantages of each. 8

b) How does a Hotchkiss drive differ from a torque tube drive? Explain with neat sketch torque tube and Hotchkiss drive. 8

OR

6. a) Explain the necessity of differential in an automobile. Discuss in detail construction and operation 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 worm and worm wheel steering gear and worm and nut 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. Castor
 3. Toe-in
 4. Toe-out
 5. King pin inclination

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

- b) Explain the necessity of power steering system in an automobile. Explain working and construction of power steering system. **8**
9. a) Explain the Battery Ignition system used in automobile with neat sketch. State its salient features. Also define battery capacity. **8**
- b) Explain with neat sketch different starting motor switches. **8**

OR

10. a) How batteries are rated? How lead acid battery is tested? Explain the procedure of testing. **8**
- b) Explain briefly the following: **8**
- i) Standard Bendix drive
 - ii) Over running clutch type starting drive
