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**Question Paper Code: 31574**

B.E. / B.Tech. DEGREE EXAMINATION, NOVEMBER 2015

Fifth Semester

Mechanical Engineering

01UME504 – AUTOMOBILE ENGINEERING

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. State any two needs of reducing vehicle aerodynamic resistance in automobile.
2. List out any eight components of an engine.
3. State any four advantages of turbocharger in automobile.
4. Name any four functions of a battery in a vehicle.
5. Name any four types of clutches.
6. What is an overdrive?
7. What is meant by castor and camber angle?
8. What is the need for good suspension system?
9. Name any four difficulties in using hydrogen as alternative fuel source in automobiles.
10. Write any four differences between SI and CI engine.

PART - B (5 x 16 = 80 Marks)

11. (a) Explain the different layout of an automobile with neat sketches. (16)

Or

- (b) Explain the following
- (i) Various parts of engine cooling system with neat sketch. (8)
  - (ii) Wet sump lubrication system with neat sketch. (8)
12. (a) Describe the following with neat sketch
- (i) Unit injector system (4)
  - (ii) Rotary distributor type (6)
  - (iii) Common rail direct injection system (6)
- Or
- (b) (i) Explain the distributor type electronic ignition system with neat sketch. (10)
- (ii) Describe the working of three-way catalytic converter with suitable sketch. (6)
13. (a) (i) Briefly describe the rear axle drives with suitable sketches. (8)
- (ii) Discuss the following (1) Fluid flywheel (2) Differential. (8)
- Or
- (b) Explain the need for gear box and discuss the different types of meshes in the gearbox with neat sketches. (16)
14. (a) (i) Briefly explain any two types of steering gears with neat sketch. (10)
- (ii) List the distinct advantages of power steering over manual steering. (6)
- Or
- (b) (i) Describe the layout of air-brake system for bus with neat sketch. (8)
- (ii) What is antilock braking system and explain its purpose. (8)
15. (a) (i) Discuss the following (1) Liquefied petroleum gas (2) Bio-diesel for automobile. (8)
- (ii) Discuss the engine modification requirement for the alternative fuel sources. (8)
- Or
- (b) Discuss in detail about electric and hybrid vehicles. (16)
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