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Question Paper Code : 51862

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2016

Sixth Semester

Mechanical Engineering

ME 2354/ME 62/10122 ME 604 – AUTOMOBILE ENGINEERING

(Regulations 2008/2010)

(Common to PTME 2354/10122 ME 604 Automobile Engineering for B.E. (Part-Time)

Fifth/Sixth Semester – Mechanical Engineering

Regulations 2009/2010)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A (10 × 2 = 20 Marks)

1. What are the classifications of automobile based on transmission system ?
2. What are the advantages of tubeless tyre over tubed tyre ?
3. What is the need of altering the ignition timing with respect to engine speed and load ?
4. What are the factors that affect the life of a spark plug ?
5. State the function of main shaft and lay shaft of a gear box.
6. What do you mean by overdrive ?
7. What is a self energizing brake ?
8. Why Synchronizer is required in the automotive transmission system ?
9. What is the need to switch over to alternate sources of energy ?
10. Write the reaction that takes place during discharging and charging of nickel metal hydride cell.

PART – B (5 × 16 = 80 Marks)

11. (a) (i) What is the effect of weight of vehicle and passengers on the frame side members ? Explain. (8)
- (ii) Write note on different types of material used for chassis frame. (8)
- OR**
- (b) (i) Explain the term “Rolling resistance” with the help of a neat sketch. (8)
- (ii) Draw a neat labelled diagram of rear engine rear wheel drive type of vehicle layout. (8)
12. (a) (i) Explain electronic spark timing/control with a circuit diagram. (8)
- (ii) Write short notes on the following : (8)
- Ignition Coil and Alternator
- OR**
- (b) Discuss various methods to reduce the level of pollutants in the exhaust gases. (16)
13. (a) (i) Explain the need of universal joints in propeller shafts. (6)
- (ii) How will you classify clutches ? Describe with neat sketch function and working of multi-plate clutch. (10)
- OR**
- (b) (i) Explain with neat sketch gear shifting mechanism. (8)
- (ii) Explain the working of automatic gear box. (8)
14. (a) (i) With a neat sketch, explain the construction and operation of a shock absorber. (8)
- (ii) Explain in detail about steering geometry with neat sketches. (8)
- OR**
- (b) (i) Distinguish between independent suspension and conventional suspension system. (6)
- (ii) Explain air brake system in detail. Also state its advantages over hydraulic brake system. (10)
15. (a) (i) Explain in brief electrical car layout. (8)
- (ii) Compare advantages and disadvantages of LPG, hydrogen and biodiesel as a fuel used in I.C. engine. (8)
- OR**
- (b) Explain the various properties of alternative fuels. (16)