G 435 (Pages : 3)

B.TECH. DEGREE EXAMINATION, MAY 2014

Sixth Semester

Branch : Mechanical Engineering

ME 010 606 L 03—AUTOMOBILE ENGINEERING (Elective I) [ME]

(New Scheme—2010 Admission onwards)

[Regular/Improvement/Supplementary]

Time : Three Hours   Maximum : 100 Marks

Part A

Answer all questions.
Each question carries 3 marks.

1. What are the functions of an automotive piston ?

2. Differentiate between wet and dry clutch.

3. How do a shock absorber work ?

4. Explain the term 'wheel balancing'. Explain the effects of an out of balance wheel.

5. Name different lights commonly used on a modern passenger car.

(5 × 3 = 15 marks)

Part B

Answer all questions.
Each question carries 5 marks.

6. Describe with the help of a neat diagram, the operating principle of an electric horn.

7. Why are internal expanding drum brakes used for the wheel brakes ?

8. Explain the principle of 'Ackerman steering mechanism'.

9. List the various problems that indicate suspension system trouble.

10. List the automobile engine components and state its application.

(5 × 5 = 25 marks)

Turn over

Part C

Answer **all** *questions.*
Each question carries 12 marks.

11. (a) Differentiate between Two stroke and Four stroke engine.

(b) Write short notes on multipoint fuel injection systems.

(6 + 6 = 12 marks)

Or

12. With the help of neat sketches, explain the working principles of various types of oil pumps used for automotive applications.

(12 marks)

13. (a) Differentiate between :

(i) Single plate and Multi plate clutch.

(ii) Wet and Dry clutch.

(3 + 3 = 6 marks)

(b) Discuss the various types of manual transmissions used in automobile applications.

(6 marks)

Or

14. Discuss briefly a fluid coupling with the schematic diagram.

(12 marks)

15. (a) Explain with the help of a neat and labelled sketch, the construction and working of a telescopic type of shock absorber.

(b) Explain briefly how hydraulic shock absorbers act to reduce car tossing and rolling ?

(6 + 6 = 12 marks)

Or

16. (a) What are the stages in suspension system ?

(6 marks)

(b) Write short notes on :

(i) Macpherson strut.

(ii) Torsion bar.

(3 + 3 = 6 marks)

17. (a) Write a detailed note on 'tandem master cylinder'.

(6 marks)

(b) What are the advantages of electric brakes ? Describe its working details.

(6 marks)

Or

18. Explain the hydraulic brake systems with a neat diagram showing all the components.

(12 marks)

19. With the help of a simple circuit diagram, discuss briefly the following :

  (a) Battery ignition system.

  (b) Lighting and Accessory system.

(6 + 6 = 12 marks)

Or

20. Write short notes on :

  (a) Engine tuning.

  (b) Bendix drive.

(6 + 6 = 12 marks)

[5 × 12 = 60 marks]