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Question Paper Code : 91666

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2014.

Sixth Semester

Mechanical Engineering

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

(Regulation 2008/2010)

(Common to PTME 2354/10122 ME 604 Automobile Engineering for B.E.
(Part – Time) Fifth/Sixth Semester — Mechanical Engineering —
Regulation 2009/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the need for a gearbox in an automobile?
2. What is chassis? How its design is related to vehicle aerodynamics?
3. What do you understand by the term DTS-I?
4. How does a turbo charger work?
5. What is the function of a flywheel?
6. What is 4WD and AWD?
7. Compare disc and drum brakes.
8. List out the different types of steering gear system.
9. What are the alternative energy sources for automobiles?
10. Why fuel cells are not preferred for automobiles now?

PART B — (5 × 16 = 80 marks)

11. (a) Explain the different components of the engine and their function. (16)

Or

- (b) (i) Explain the resistance to vehicle motion. (8)
(ii) Tabulate the typical metals used for engine parts. (8)

12. (a) Explain the following with suitable sketches : (16)

- (i) Rotary distributor type
(ii) Common rail direct injection system.

Or

- (b) Explain in detail about the engine emission control by three way catalytic converter system. (16)

13. (a) (i) Explain the working of friction clutches. What are the assumptions made in pressure calculation? (8)
(ii) Explain the differential of an automobile with a neat sketch. (8)

Or

- (b) Explain in detail the automatic transmission system. (16)

14. (a) Explain the four parameters of wheel alignment with neat sketches. (16)

Or

- (b) Explain the following :

- (i) Power steering.
(ii) ABS.
(iii) Hotchkiss suspension. (16)

15. (a) (i) Compare performance, emission and cost aspects alternate fuels with conventional fuels for automobiles. (8)

- (ii) Explain the engine modification required to use alternate fuels in automobiles. (8)

Or

- (b) (i) Briefly explain electric and hybrid vehicles. (8)

- (ii) Explain solid polymer fuel cell with a neat sketch. (8)