

Reg. No. :

Question Paper Code : C 1384

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2010.

Sixth Semester

Mechanical Engineering

ME 1353 — AUTOMOBILE ENGINEERING

(Common to Production Engineering)

(Regulation 2004)

(Common to B.E. (Part-Time) – Fifth Semester Mechanical Engineering –
Regulation 2005)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What do you understand by Turbo charging? State how it is different from supercharging.
2. List down the sensors used in electronic engine management system.
3. What do you understand by the terms MPFI and CRDI? State its advantages over the conventional system.
4. What is a Bendix drive?
5. Mention the functions of an overdrive. State its advantages.
6. What do you understand by Hotchkiss drive?
7. Define Toe in and Toe out.
8. List down the reasons for tyre wear and state the methods to minimise it.
9. What do you understand by gasohol and diesohol? Indicate the methods to prepare the same.
10. Mention the limitations of using hydrogen as automobile fuel.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Draw the layout of an automobile and indicate the various components.
- (ii) Discuss the principle of operation of a four stroke cycle S.I Engine with a neat sketch.

Or

- (b) (i) What are the desirable properties of a good lubricant?
- (ii) Explain the working principle of a three way catalytic convertor with a sketch.
12. (a) (i) Explain the operation of a MPFI system and compare it with TBI system.
- (ii) Discuss the construction, operation and maintenance of lead acid battery.

Or

- (b) (i) Explain the working of a modern carburetor with a sketch.
- (ii) With a neat sketch explain the working of a magneto coil ignition system.
13. (a) (i) Describe the construction and operation of a synchromesh gear box.
- (ii) Explain the working principle and application of a freewheel drive in a transmission system.

Or

- (b) (i) What are the features of a good quality clutch? Explain the working of multi plate clutch with a neat sketch.
- (ii) Discuss the principle of a differential with a neat sketch and state the mechanism for power lock or non-slip.

14. (a) (i) Discuss the principle of steering and the working of power steering with a suitable sketch.
- (ii) Discuss air suspension system with a sketch.

Or

- (b) (i) Discuss the principle of hydraulic braking and discuss antilock braking system.
- (ii) How is wheel alignment done in automobiles? Explain.
15. (a) (i) Explain the method of biodiesel production through transesterification process.
- (ii) Discuss the alternative fuel suitable for compression ignition engine driven automobiles.

Or

- (b) (i) With a block diagram indicating clearly the power flow explain the operation of a hybrid vehicle.
- (ii) Explain the working principle of fuel cell with a neat sketch.