C 22610 (Pages : 2) Name.....

Reg. No.....

SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE [2014 SCHEME] EXAMINATION, APRIL 2017

Mechanical Engineering

ME 14 606—AUTOMOBILE ENGINEERING

Time : Three Hours Maximum : 100 Marks

Part A

Answer any **eight** *questions.*
Each question carries 5 *marks.*

1. What are the functions of chassis frame ? Also list out types of chassis frames with neat sketch.
2. Describe the significance of electronic fuel injection system. Also differentiate between port injection and throttle body injection ?
3. Where and why do we use multi plate clutch ?Brief about it.
4. What type of gear is used for first gear in a constant mesh gear box ? Why is it different from the higher gears ?
5. Brief: Significance of Antilock braking system (ABS).
6. Define : Instantaneous centre. Briefly explain about Ackermann steering mechanism.
7. State the advantages of an air suspension.
8. What is a tubeless tyre ? Why it cannot be used in special vehicles and trucks directly ? Give *one* solution for this problem.
9. Why air bags are very much essential when a vehicle encounters an impact ?
10. Brief about Exhaust gas recirculation (EGR).

(8 × 5 = 40 marks)

Part B

Answer **all** *questions.*

11. (a) Elucidate the different valve actuating mechanisms with neat sketches.

Or

(b) Enumerate principle, construction and working operation of Gasoline Direct Injection (GDI). Also describe the merits over MPFI engine.

Turn over

12. (a) State and describe the construction and working principle of a diaphragm clutch with engaged and disengaged condition.

Or

(b) How the synchromesh mesh gear box is different from sliding mesh gear box ? State and describe the construction and working of synchromesh gear box with power flow configurations.

13. (a) Write about the advantages and disadvantages of independent suspension system. Explain about the leaf spring suspension and multilink suspension with neat sketches.

Or

(b) (i) Draw the cross section of an automobile tyre and explain its various constructional features. (8 marks)

(ii) Discuss in detail automotive headlamp construction and how illumination is controlled when the head lamp switch is on high and low beam conditions. (7 marks)

14. (a) Describe various types of seat belt and it's working.

Or

(b) Explain : (i) Thermal reactor package ; (ii) Catalytic converter pack.

[4 × 15 = 60 marks]