Total No. of printed pages = 4

**ME 1317 E 011**

Roll No. of candidate | | | | | | | | | | |

**2018**

**B.Tech. 7th Semester End-Term Examination**

**AUTOMOBILE ENGINEERING – (Elective – I)**

Full Marks – 100 Time – Three hours

---

The figures in the margin indicate full marks for the questions.

Answer Question No. 1 and any *Six* from the rest.

1. Answer the following: (Fill in the blanks) : $(10 \times 1 = 10)$

   (i) Petrol Engine works on _____ cycle

   (ii) The range of compression ratio for Diesel engine is _____

   (iii) The air fuel ratio for petrol engine is _____

   (iv) Compression ratio is the ratio between _____

[Turn over

(v) Volumetric efficiency is the ———— of the engine.

(vi) In a four stroke engine, there is a one power stroke in ———— revolution of the crankshaft.

(vii) The firing order of a 6-cylinder engine is ————

(viii) The full form of MPFI is ————

(ix) The color of the light of the brake indicator is ————

(x) The function of a carburetor ————

2. (a) Explain briefly the main components of lubricating system for an IC engine.

(b) Explain the working of the radiator along with a schematic diagram.

(c) Write down the major components and systems of an automobile. (5+5+5=15)

3. (a) Why starting system is required in automobile? Explain the working principle of battery ignition system.

(b) Explain briefly the Ackerman Steering mechanism. (10+5=15)

4. (a) Explain the working principle of the gear box. Explain the function of a universal joint in an automobile.

(b) Explain the mechanism of automatic transmission. (8+2+5=15)



5. (a) What is the function of Propeller shaft?

(b) Classify the different types of front and rear axles. (5+10=15)

6. (a) Explain the working principle of a cone clutch.

(b) Explain the working principle of differential system.

(c) What is difference between conventional suspension and independent suspension? (5+5+5=15)

7. (a) Compare the Hydraulic braking with mechanical braking system.

(b) What are the different resistances related to automobile?

(c) Explain the variation of Torque with respect to speed for an automobile. (5+5+5=15)

8. A six cylinder, four stroke gasoline engine having a bore of 90 mm and stroke of 100mm has a compression ratio 8. The relative efficiency is 55% when the indicated specific fuel consumption is 300 gm/ kWh. Estimate (a) Air Standard Efficiency (b) Indicated Thermal Efficiency (c) Calorific value (d) Indicated power (e) Fuel consumption. (3+3+3+3+3=15)

9. Write short notes (Any *three*)

(a) Davis Steering Mechanism

(b) Stopping distance

(c) Multi-point Injection System

(d) Tractive effort

(e) Rolling Resistance. (5+5+5=15)

---