Reg. No. : | | | | | | | | | | |

Question Paper Code: 45704

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

Fifth Semester

Mechanical Engineering

14UME504 - AUTOMOBILE ENGINEERING

(Regulation 2014)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The basic automobile structure consists of the suspension system, axles, wheels and

   (a) Steering (b) frame (c) Brakes (d) Lights

2. The cooling system of automobile engine is most simple when the engine is placed at the

   (a) Front (b) Rear on the left
   (c) Centre (d) Rear on the right

3. Lean air-fuel mixture is required for

   (a) starting (b) idling (c) cruising (d) acceleration

4. The fuel injection timing in a distributor type pump is controlled by

   (a) changing plunger stroke (b) changing speed of rotor
   (c) rotating the cam ring (d) changing the number of cams on the ring

5. The component of the torque converter that allows multiplication of torque is the

   (a) Turbine (b) impeller (c) Pump (d) Stator

6. Increase of torque in a vehicle is obtained by

(a) Decreasing speed (b) Decreasing power
(c) Decreasing petrol consumption (d) none of these

7. The gas used in modern shock absorber is

(a) Nitrogen (b) Oxygen (c) Hydrogen (d) Carbon dioxide

8. In disc brake, pad to disc adjustment is provided by

(a) caliper (b) piston (c) piston seal (d) bleed screw

9. EGR system is employed for controlling emission of

(a) HC (b) CO (c) NO (d) HC and CO

10. The calorific value of alcohol is

(a) less than that of gasoline
(b) equals to that of gasoline
(c) more than that of gasoline
(d) depends upon type of the engine where used

PART - B (5 x 2 = 10 Marks)

11. What are the main units of an automobile?

12. Name the types of solid injection systems?

13. State the types of transmission system.

14. What are main advantages of power steering?

15. What is Bio-ethanol?

PART - C (5 x 16 = 80 Marks)

16. (a) Explain briefly the various types of chassis construction with the suitable diagrams. (16)

Or

(b) Explain the following terms

(i) Load distribution in frame (ii) Frame type with neat sketch
(iii) Frame materials (iv) Frame testing (16)

17. (a) (i) Explain the working principle of supercharger with a neat sketch. (10)

(ii) Describe the constructional and working principle of fuel injector. (6)

Or

(b) Discuss in detail about the functions of lead acid battery and its construction. (16)

18. (a) Explain the working principle of a differential with a neat sketch. (16)

Or

(b) Explain the working of synchromesh gear box with neat sketch. (16)

19. (a) Explain the construction and working of telescopic shock absorber with neat diagram. (16)

Or

(b) Explain the construction and operation of hydraulic braking system with a neat sketch. (16)

20. (a) Describe the salient features of using LPG as an alternate fuel. Explain why hydrogen is considered as the most favorable fuel for future. (16)

Or

(b) (i) Explain why liquefied petroleum gas is used in engine. (8)

(ii) Explain the auto fuel safety consideration. (8)