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Question Paper Code: 41754

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

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. Compared to framed construction, the frameless construction of automobiles is economical

   (a) always   (b) when produced in small quantities
   (c) when produced on large scale   (d) never

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

   (a) front   (b) centre   (c) rear on the left   (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 purpose of transmission in an automobile is

   (a) to vary the speed of automobile   (b) to vary the torque at the road wheels
   (c) to vary the power of automobile   (d) none of these

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

    (a) turbine   (b) impeller   (c) freewheel   (d) stator

7. The function of a shackle with a leaf spring is to

    (a) allow pivoting of spring end   (b) allow spring length to change

    (c) control sides way   (d) control rear torque

8. The side force sustained by the wheel during cornering divided by the slip angle is called

    (a) cornering force   (b) camber force

    (c) cornering power   (d) none of these

9. The process in which hydrocarbons are decomposed in t smaller hydrocarbons is called

    (a) cracking   (b) reforming

    (c) polymerization   (d) alkylation

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. How automobiles are streamlined based on transmission?

12. Mention the different circuits involved in solex carburetor.

13. Why multi-plate clutches are used in automobiles?

14. State Pascal's law.

15. What is Bio-ethanol?

PART - C (5 x 16 = 80 Marks)

16. (a) (i) Define the term automobile and classify it with examples. (10)

      (ii) Explain the classifications of chassis and its advantages. (6)

Or

(b) Draw the layout of an automobile and indicate the various components. (16)

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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) Sketch and explain the construction and operation of a simple carburetor. (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 Ackermann steering system and drive the condition for true rolling motion in it. (16)

Or

(b) Describe with a neat sketch of working of anti-lock braking system. (16)

20. (a) Explain the working features of Hybrid vehicles with a neat sketch. (16)

Or

(b) Explain how bio diesel is prepared and its usage in automobile. (16)

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