A **Reg. No. :** | | | | | | | | | | |

Question Paper Code: 59703

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2024

Elective

Mechanical Engineering

15UME903 - AUTOMOBILE ENGINEERING

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The size of engine cylinder is referred in terms of its_____. CO1- R

(a) Bore and length (b) Bore and stroke

(c) Displacement and efficiency (d) Diameter and bore

2. The distance between the centre of the front and rear wheel is known as CO1- R

(a) Chassis (b) Wheel base (c) Chassis overhang (d) Wheel track

3. In the electronic ignition system, the primary circuit is opened and closed by_____. CO2- R

(a) Electronic switch (b) Solenoid (c) Contact points (d) Mechanical switch

4. The instrument used to check specific gravity of acid in a battery is CO2- R

(a) Hydrometer (b) Hygrometer (c) Anemometer (d) Multimeter

5. The clutch is located between the transmission and CO3- R

(a) Rear axle (b) Differential (c) Engine (d) Propeller shaft

6. Two speed reverse gear arrangements are generally provided in case of_____ CO3- R

(a) Passenger car (b) Bus (c) Tractors (d) Van

7. The parking brake generally acts on _____ CO4- R

(a) Front wheels (b) Rear wheels

(c) Diagonally opposite front and rear wheel (d) All wheels

8. Most commonly used Supplementary Restraint System (SRS) component is — CO4- R

(a) Seat belt (b) Brake (c)Airbag (d) Steering

9. Which of the following is a nonrenewable energy resource? — CO5- R

(a) Solar (b) Methane (c) coal (d) Hydroelectric

10. Which of the following vehicles produces zero emissions? — CO5- R

(a) Petrol (b) Diesel (c) Hybrid (d) Electric

PART – B (5 x 2= 10 Marks)

11. What do you understand by Aerodynamics? How it affects the performance of an automobile? — CO1- R

12. Differentiate between turbo charging and supercharging. — CO2- R

13. Why the clutch is placed in between the flywheel and the transmission? — CO3- R

14. What is Toe - in and Toe-out in a steering system. — CO4- R

15. Mention the advantage and disadvantages of Bio-Diesel. — CO5- R

PART – C (5 x 16= 80 Marks)

16. (a) Illustrate layout of conventional chassis with a neat sketch and discuss the various parts on it? — CO1- U — (16)

Or

(b) Explain the sensors and actuators used in heavy vehicles with examples. — CO1- U — (16)

17. (a) With a neat sketch explain the working of an electronic fuel injection system. — CO2-U — (16)

Or

(b) Explain the working principle of catalytic converter with a neat sketch. — CO2 -U — (16)

18. (a) With the help of a neat sketch, explain the construction and operation of a sliding mesh gear box. — CO3-U — (16)

Or

(b) Describe Hotchkiss drive and Torque tube drive with neat sketches. — CO3- U — (16)

19.	(a)	Describe the following: (i) Antilock braking system (ii) Air bags	CO4- U	(16)
		Or		
	(b)	Explain in detail about Suspension Systems with neat sketches.	CO4- U	(16)
20.	(a)	Illustrate the modification required for converting petrol fuelled vehicles into LPG fuelled vehicles.	CO5- U	(16)
		Or		
	(b)	Describe the working principle of a fuel cell.	CO5- U	(16)