

University of Mumbai

Mechanical Engineering Examination

Sub: MEDLO7032/ Automobile Engineering

Year/Sem:- BE/ VII Sem

Max. Marks: 80

Duration: - 2Hrs

Sample Question Paper

Q1. Attempt all the MCQS

(20 X 2 mark= 40 marks)

1. Choose the maximum torque multiplication ratio in torque converter.
 - a) 25.5
 - b) 20.9
 - c) 2.5
 - d) 80.4

2. Cushioning springs in clutch plate are meant to reduce _____.
 - a) Torsional vibration.
 - b) Vehicle Speed.
 - c) Jerky Start.
 - d) acceleration.

3. Increase in torque in a vehicle is obtain by_____.
 - a) Decreasing speed.
 - b) Decreasing Power.
 - c) Decreasing fuel consumption.
 - d) application of brake.

4. Double declutching related to _____.
 - a) Two clutches in one vehicle.
 - b) Single clutch pedal with two clutch plates.
 - c) Single clutch pedal with two pressure plates.
 - d) Clutch disengage twice in this process.

5. The function of the universal joint is to allow the propeller to
 - a) Bend sideway.
 - b) Change inclination.
 - c) Change length.
 - d) transfer torque at an angle.

6. The adjustment for backlash in a differential is provided between
- Crown wheel and the sun gear.
 - Sun gear and the planet gear.
 - Crown wheel and the drive pinion.
 - Crown wheel and the planet gear
7. The angle formed by the wheel with the vertical when top of the wheel slants outward is called
- Positive Camber.
 - Negative Camber.
 - Positive Castor.
 - Negative Castor
8. In Brake system the brake bleeding process removes
- air.
 - Water.
 - Excess Pressure.
 - Excess fluid.
9. The purpose of tyre plies to
- Decrease noise level.
 - Increase traction.
 - Increased tread life.
 - Provide softer ride.
10. Identify the type of wheel which cannot be used with a tubeless tyre is
- Wire wheel.
 - Disc wheel.
 - Composite wheel.
 - Light alloy wheel.
11. Predict important function of shackle with a leaf spring is to
- Allow pivoting of spring end.
 - Control sidesway.
 - Control rear torque.
 - Allow spring length to change .

12. The type of wheels preferred in sports car are

- a) Disc wheel.
- b) Wire Wheel.
- c) Magnesium alloy wheel.
- d) Aluminium alloy wheel.

13. The specific gravity of electrolyte is measured by

- a) Manometer.
- b) A mechanical gauge.
- c) Hydrometer.
- d) Psychrometer.

14. The capacity of battery is determined by the number of plates per cell and

- a) Shape of plates.
- b) Size of plates.
- c) Number of cells
- d) Number of separators.

15. What are respective colours of the positive and negative plates in a lead-acid battery?

- a) Brown and grey.
- b) Brown and black.
- c) Grey and black.
- d) White and grey.

16. The sparking voltage at the spark plug in a petrol engine is

- a) 1200 to 5000 Volt.
- b) 5000 to 8000 Volt.
- c) 500 to 1000 Volt.
- d) 15000 to 20000 Volt.

17. The most effective section against bending is

- a) Round bar.
- b) Rectangular bar.
- c) Round hollow tube.
- d) Square hollow section.

18. Which aspect is not true in the context of frameless construction when compared to conventional framed construction?

- a) Increased stability.
- b) Reduced Weight.
- c) Greater strength and durability.
- d) Passenger safety during accidents.

19. Engine Control Unit take input from temperature sensor at engine coolant to operate

- a) Rain sensor.
- b) ABS.
- c) Thermo wax valve.
- d) Parking sensor.

20. Identify Mechanism which detect vehicle skidding movements, and actively counteracts that is called

- a) Adaptive cruise control (ACC).
- b) Airbag.
- c) Electronic Stability Program (ESP).
- d) Rain sensors.

Q2. Attempt any FOUR

(04 X 05 marks= 20 marks)

1. Illustrate working of Magneto ignition system.
2. Differentiate Sliding mesh gearbox and Constant mesh gearbox.
3. Sketch and explain lead acid battery.
4. Sketch and explain hydraulic brake system.
5. Illustrate an automobile system which is used to avoid skidding of the vehicle while taking a turn.
6. Sketch and explain Anti-lock brake system.

Q3. Attempt any TWO

(02 X 10 marks= 20 marks)

1. Illustrate the gear system used to avoid double declutching.
2. Choose the lead acid battery or sodium sulphur battery based on high energy density parameter, and further Illustrate the selected battery along with its construction.
3. Describe Adaptive Cruise Control system used in automotive vehicle.
4. Explain Steering Geometry with neat sketch.