BRAINWARE UNIVERSITY

Term End Examination 2024-2025
Programme – B.Tech.(ME)-2021
Course Name – Automobile Engineering
Course Code - PEC-ME701A
(Semester VII)

Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Name the part that transfers power from the engine to the wheels.
a) Transmission b) Axle
c) Gearbox d) Brake Drum

(ii) State what MPFI stands for in fuel systems.
a) Multi-Piston Fuel Injection b) Multi-Point Fuel Injection
c) Mechanical Pressure Fuel Injection d) Multi-Port Fuel Injection

(iii) State the material commonly used for car tires.
a) Plastic b) Rubber
c) Metal d) Carbon fiber

(iv) Select the primary function of a turbocharger.
a) Reduce emissions b) Increase engine power
c) Control engine noise d) Lower fuel consumption

(v) Name the most common cooling system used in modern cars.
a) Air-cooled b) Water-cooled
c) Oil-cooled d) Gas-cooled

(vi) Select the component responsible for controlling the vehicle's direction.
a) Steering column b) Rack and pinion
c) Differential d) Axle

(vii) Name the type of transmission that uses a torque converter.
a) Manual transmission b) Automatic transmission
c) Dual-clutch transmission d) Continuous Variable Transmission

(viii) Predict the result of a clogged air filter on engine performance.

a) Increased power output
b) Increased fuel consumption
c) Reduced engine temperature
d) Better fuel economy

(ix) Select the type of fuel system that delivers fuel directly into the combustion chamber.
a) Carburetor
b) Direct injection
c) Throttle body injection
d) MPFI

(x) Identify the component that regulates engine temperature.
a) Water pump
b) Thermostat
c) Radiator
d) Fan

(xi) Predict the effect of low engine oil levels on engine performance.
a) Increased horsepower
b) Engine overheating
c) Improved fuel efficiency
d) Reduced noise

(xii) Select the suspension component responsible for absorbing shocks.
a) Leaf spring
b) Brake caliper
c) Shock absorber
d) Axle

(xiii) Identify the type of gearbox used in modern automatic vehicles.
a) Manual
b) CVT
c) Automatic
d) Dual-clutch transmission

(xiv) Select the type of ignition used in a CI engine.
a) Spark plug ignition
b) Compression ignition
c) Battery ignition
d) Magneto ignition

(xv) Choose the correct fuel used in an SI engine.
a) Diesel
b) Gasoline
c) Biodiesel
d) Kerosene

Group-B
(Short Answer Type Questions) 3 x 5=15

2. Define a fuel cell and state its advantages. (3)
3. Write the function of propeller shaft, flywheel and engine. (3)
4. Describe the various types of suspension systems used in automobiles and their importance in vehicle dynamics. (3)
5. Write a detailed explanation of the brake system components and their functions in an automobile. (3)
6. Explain the design and characteristics of a double wishbone suspension system. (3)

OR

Illustrate the components and operation of a MacPherson strut suspension system. (3)

Group-C
(Long Answer Type Questions) 5 x 6=30

7. With th help of a diagram show the constructional details of a constant mesh gear box. (5)
8. With the help of a neat sketch show the layout of an automobile. (5)
9. Differentiate between MacPherson strut and double wishbone type suspension system. (5)
10. State few advantages of using electric vehicles over the conventional ones. (5)
11. Illustrate few advantages of air brakes. (5)

12. Explain the importance of catalytic converters. (5)

OR

State 5 components of a simple carburetor and explain the function of each component. (5)

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