



قائمة الاسئلة

تكنولوجيا السيارات الحديثة- كلية الهندسة - قسم الميكانيك - المستوى الرابع- 3ساعات - درجة هذا الاختبار (50)

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- 1) What is the primary function of transmission control systems in vehicles?
 - 1) - Enhance safety features
 - 2) + Optimize power transmission between engine and wheels
 - 3) - Reduce fuel consumption
 - 4) - Increase vehicle speed
- 2) Which system integrates with Traction Control Systems (TCS) to prevent wheel lockup during braking?
 - 1) - Electronic Control Unit (ECU)
 - 2) - Brake-based Traction Control
 - 3) + Anti-lock Braking System (ABS)
 - 4) - Torque Vectoring
- 3) Which mode in automatic transmission is used for hilly and muddy areas?
 - 1) - Park (P)
 - 2) - Drive (D)
 - 3) - Neutral (N)
 - 4) + Low (L)
- 4) What is the role of adaptive lighting in smart homes?
 - 1) + Adjust brightness and color based on time and environment
 - 2) - Increase energy consumption
 - 3) - Require constant manual adjustments
 - 4) - Disable automation features
- 5) How do smart lighting systems enhance security?
 - 1) + Simulate occupancy when users are away
 - 2) - Increase energy consumption
 - 3) - Limit user control
 - 4) - Disable motion sensors
- 6) Which feature allows smart lights to sync with entertainment systems?
 - 1) + Music-responsive lighting
 - 2) - Fixed brightness control
 - 3) - Manual dimming
 - 4) - Non-programmable settings
- 7) How do smart lighting systems support energy conservation?
 - 1) + Optimize light usage based on occupancy and daylight levels
 - 2) - Keep lights on at all times
 - 3) - Disable automation features
 - 4) - Reduce user control
- 8) the primary role of a home automation hub in smart lighting?
 - 1) + Connect and manage multiple smart devices
 - 2) - Increase energy consumption
 - 3) - Disable remote access
 - 4) - Reduce system flexibility
- 9) How do smart lighting systems reduce the carbon footprint?
 - 1) + Minimize energy waste and optimize usage
 - 2) - Require frequent bulb replacements
 - 3) - Use high-energy-consuming bulbs
 - 4) - Disable energy-saving features



- 10) What is the function of an ignition coil in a coil-on-plug ignition system?
- 1) ☒ To generate high voltage directly at each spark plug
 - 2) ☐ To distribute spark energy using a distributor
 - 3) ☐ To regulate fuel injection
 - 4) ☐ To control exhaust emissions
- 11) What happens if a spark plug is excessively fouled?
- 1) ☐ It enhances combustion efficiency
 - 2) ☒ It leads to misfires and rough engine performance
 - 3) ☐ It increases ignition coil lifespan
 - 4) ☐ It improves fuel economy
- 12) Which factor primarily influences spark plug lifespan?
- 1) ☐ Fuel tank size
 - 2) ☒ Driving conditions and engine temperature
 - 3) ☐ The color of the vehicle
 - 4) ☐ The type of engine oil used
- 13) Which type of ignition system is commonly used in motorcycles?
- 1) ☐ Coil-on-Plug Ignition
 - 2) ☒ Capacitor Discharge Ignition (CDI)
 - 3) ☐ Distributor Ignition System
 - 4) ☐ Diesel Glow Plug Ignition
- 14) What is a common failure symptom of a failing ignition coil?
- 1) ☐ Increased fuel efficiency
 - 2) ☒ Engine misfires and poor acceleration
 - 3) ☐ Smooth engine operation
 - 4) ☐ Enhanced throttle response
- 15) Which of the following is a primary function of sensors in modern vehicles?
- 1) ☒ To provide data for the control system
 - 2) ☐ To convert electrical signals into mechanical actions
 - 3) ☐ To measure physical quantities
 - 4) ☐ To enhance vehicle aesthetics
- 16) Which type of sensor is typically used to measure air flow into the engine?
- 1) ☐ Camshaft position sensor
 - 2) ☒ Mass air flow sensor
 - 3) ☐ Knock sensor
 - 4) ☐ Oxygen sensor
- 17) Which of the following sensors provides input to the engine control module (ECM) in a vehicle?
- 1) ☐ Knock/Detonation sensor
 - 2) ☐ Camshaft position sensor
 - 3) ☐ Exhaust oxygen level sensor
 - 4) ☒ All of the above
- 18) The Mass Air Flow (MAF) Sensor is responsible for measuring:
- 1) ☐ The engine's exhaust gas levels
 - 2) ☒ The flow of air into the engine
 - 3) ☐ The position of the crankshaft
 - 4) ☐ The temperature of the vehicle
- 19) The Camshaft Position Sensor measures the position of which vehicle part?
- 1) ☐ Exhaust system
 - 2) ☐ Crankshaft
 - 3) ☒ Camshaft



- 4) - Fuel injector
- 20) The Mass Air Flow Sensor is designed to measure:
- 1) ☒ The volume of air entering the engine
 - 2) - The fuel consumption
 - 3) - The engine's exhaust levels
 - 4) - The temperature of the exhaust system
- 21) Which of the following pollutants are commonly associated with emissions from compression ignition engines?
- 1) - Carbon monoxide (CO)
 - 2) ☒ Nitrogen oxides (NOx)
 - 3) - Particulate matter (PM)
 - 4) - Sulfur dioxide (SO2)
- 22) What particular emissions are lessened by the EGR?
- 1) - NOS
 - 2) ☒ NOx
 - 3) - H2O
 - 4) - CO
- 23) What does EGR stand for?
- 1) - Exhaust Gas Rod
 - 2) ☒ Exhaust Gas Re-circulation
 - 3) - Engine Gas Return
 - 4) - Emission Gas Reduction
- 24) What is the function of the Mass Air Flow (MAF) Sensor?
- 1) - Measures the pressure inside the intake manifold
 - 2) - Monitors the engine coolant temperature
 - 3) - Detects the position of the throttle valve
 - 4) ☒ Measures the amount of incoming air to calculate the air-fuel ratio
- 25) What is the role of the Throttle Position Sensor (TPS)?
- 1) - Measures engine coolant temperature
 - 2) - Measures pressure within the intake manifold
 - 3) ☒ Detects the position of the throttle valve to determine engine load and acceleration
 - 4) - Measures the amount of incoming air
- 26) What does the Camshaft Position Sensor (CMP) do?
- 1) - Measures the speed of the crankshaft
 - 2) - Monitors the oxygen content in the exhaust
 - 3) ☒ Determines the position and speed of the camshaft to synchronize fuel injection timing with the engine cycle
 - 4) - Provides information about exhaust gas temperature
- 27) What is the role of the Oxygen (O2) Sensor?
- 1) - Measures the temperature of the exhaust gases
 - 2) ☒ Determines the air-fuel ratio by measuring the oxygen content in exhaust gases and adjusts fuel injection accordingly
 - 3) - Provides crankshaft position information
 - 4) - Synchronizes fuel injection timing with the camshaft
- 28) Which of the following technologies is commonly used in ADAS?
- 1) - Blockchain
 - 2) ☒ Sensing, imaging, and artificial intelligence
 - 3) - Cloud gaming
 - 4) - Paper-based navigation



- 29) What does Rear Cross Traffic Alert (RCTA) detect?
- 1) - Objects in the blind spot
 - 2) ☒ Vehicles approaching from the side while reversing
 - 3) - Pedestrians on the sidewalk
 - 4) - Speed limit changes
- 30) What is a major challenge of integrating GPS and GIS systems?
- 1) - Low internet speed
 - 2) ☒ Data volume management and privacy concerns
 - 3) - Lack of user interest
 - 4) - High cost of maps
- 31) What is one benefit of real-time GPS updates?
- 1) - Reduced travel efficiency
 - 2) - Increased congestion
 - 3) ☒ Improved travel efficiency in congested areas
 - 4) - More road accidents
- 32) How can AI improve traffic management?
- 1) ☒ Predict traffic flow patterns
 - 2) - Increase fuel consumption
 - 3) - Replace all human drivers
 - 4) - Decrease road quality
- 33) What is an environmental benefit of smart traffic management?
- 1) - Increased carbon emissions
 - 2) ☒ Reduction in fuel consumption
 - 3) - Encouraging high-speed driving
 - 4) - Increased traffic congestion
- 34) Which of the following is a challenge in implementing ADAS?
- 1) - Lack of consumer interest
 - 2) ☒ High costs and sensor limitations
 - 3) - Decreased vehicle safety
 - 4) - Limited car manufacturers
- 35) What is the main function of a Head-up Display (HUD)?
- 1) ☒ Display navigation and driving data on the windshield
 - 2) - Control car temperature
 - 3) - Increase engine performance
 - 4) - Replace side mirrors
- 36) What kind of chemical reaction generates the gas to inflate the airbag?
- 1) - Combustion reaction
 - 2) ☒ Decomposition reaction
 - 3) - Neutralization reaction
 - 4) - Oxidation reaction
- 37) What causes the airbag to deflate quickly after deployment?
- 1) ☒ Gas leakage through tiny holes in the fabric
 - 2) - A vacuum mechanism
 - 3) - A chemical reaction inside the airbag
 - 4) - None of the above
- 38) Which physical quantity is critical in determining airbag deployment?
- 1) ☒ Acceleration
 - 2) - Velocity
 - 3) - Displacement



- 4) - Mass
- 39) How does the seatbelt reduce the force experienced by the body during a crash?
- 1) ☒ By distributing the force over a larger area of the body
 - 2) - By absorbing the impact completely
 - 3) - By increasing the speed of impact
 - 4) - By delaying airbag deployment
- 40) Why is it unsafe to place the shoulder belt under your arm while driving?
- 1) ☒ It reduces seatbelt effectiveness during a crash
 - 2) - It activates the airbag incorrectly
 - 3) - It damages the seatbelt material
 - 4) - It increases fuel consumption
- 41) What ensures that seatbelts work effectively during a collision?
- 1) ☒ Proper tensioning and locking mechanisms
 - 2) - The type of fabric used
 - 3) - The weight of the passenger
 - 4) - The vehicle's speed
- 42) Which component reduces the vehicle's tilt during turns?
- 1) - Springs
 - 2) - Mechanical joints
 - 3) ☒ Stabilizer
 - 4) - Shock absorbers
- 43) Which type of spring uses fluid (usually oil) to store energy?
- 1) - Coil spring
 - 2) - Air spring
 - 3) - Leaf spring
 - 4) ☒ Hydraulic spring
- 44) Which part converts rotational motion into linear motion in the steering system?
- 1) - Steering wheel
 - 2) - Steering column
 - 3) ☒ Steering gear
 - 4) - Control arm
- 45) Which component in the steering system allows the wheels to move in all directions?
- 1) - Control arm
 - 2) ☒ Ball joint
 - 3) - Stabilizer
 - 4) - Shock absorber
- 46) What does 'HEV' stand for?
- 1) - Hybrid Energy Vehicle
 - 2) ☒ Hybrid Electric Vehicle
 - 3) - Hydrogen Efficient Vehicle
 - 4) - High Efficiency Vehicle
- 47) In a series hybrid, how is energy transferred to the drivetrain?
- 1) - Directly from the internal combustion engine
 - 2) - Only through the battery
 - 3) ☒ Through a generator and electric motor
 - 4) - Using solar energy
- 48) What is a major safety concern when working on hybrid vehicles?
- 1) - Low voltage risks
 - 2) ☒ High voltage electrocution risks



- 3) - Fire risk from gasoline
- 4) - Increased weight
- 49) What should be done before servicing a hybrid vehicle's high-voltage system?
 - 1) ☒ Disconnect the high-voltage battery
 - 2) - Remove the fuel tank
 - 3) - Increase tire pressure
 - 4) - Start the engine
- 50) What is the main advantage of Series-Parallel Hybrid vehicles?
 - 1) - They have the longest battery life
 - 2) ☒ They combine both series and parallel hybrid benefits
 - 3) - They are cheaper to manufacture
 - 4) - They use only renewable energy