

Q1. Which refrigerant replaced R-134a in most modern car HVAC systems due to environmental concerns?

- A. R-12
- B. R-22
- C. R-1234yf
- D. R-410A

Answer: C

Q2. The main environmental problem caused by old refrigerants like R-12 was:

- A. Global warming only
- B. Ozone layer depletion
- C. Acid rain
- D. Water pollution

Answer: B

Q3. Which gas from car AC systems contributes to global warming?

- A. Oxygen
- B. Carbon dioxide
- C. Refrigerant gas
- D. Nitrogen

Answer: C

Q4. The Global Warming Potential (GWP) of R-1234yf is:

- A. Very high

B. Moderate

C. Very low

D. Zero

Answer: C

Q5. Which safety device protects the AC system from over-pressure?

A. Evaporator

B. Condenser

C. Pressure relief valve

D. Receiver drier

Answer: C

Q6. Refrigeration is the process of:

A. Heating a space

B. Cooling a space below atmospheric temperature

C. Removing humidity

D. Supplying hot air

Answer: B

Q7. The working fluid in refrigeration is called:

A. Coolant

B. Refrigerant

C. Lubricant

D. Water

Answer: B

Q8. In an air conditioning system, the main function of the evaporator is to:

- A. Compress gas
- B. Absorb heat
- C. Reject heat
- D. Pump refrigerant

Answer: B

Q9. Which component increases the pressure of the refrigerant?

- A. Condenser
- B. Compressor
- C. Evaporator
- D. Expansion valve

Answer: B

Q10. Air conditioning controls all except:

- A. Temperature
- B. Humidity
- C. Air cleanliness
- D. Fuel consumption

Answer: D

Q11. The vapour compression cycle has how many main components?

- A. 2
- B. 3
- C. 4
- D. 5

Answer: C

Q12. The function of the expansion valve is to:

- A. Increase pressure
- B. Decrease pressure
- C. Absorb heat
- D. Reject heat

Answer: B

Q13. In which component does refrigerant absorb heat?

- A. Condenser
- B. Compressor
- C. Evaporator
- D. Expansion valve

Answer: C

Q14. Heat rejection occurs in the:

- A. Evaporator
- B. Compressor
- C. Condenser
- D. Expansion device

Answer: C

Q15. COP of a refrigeration system is defined as:

- A. Work done / Heat absorbed
- B. Heat rejected / Work input
- C. Heat absorbed / Work input
- D. Work input / Heat rejected

Answer: C

Q16. The main function of the compressor in a car AC system is to:

- A. Store refrigerant
- B. Increase pressure of refrigerant
- C. Cool the refrigerant
- D. Absorb heat from cabin

Answer: B

Q17. Which component converts high-pressure refrigerant gas into liquid?

- A. Evaporator
- B. Compressor
- C. Condenser
- D. Receiver drier

Answer: C

Q18. The expansion valve in the AC system:

- A. Increases refrigerant temperature
- B. Reduces refrigerant pressure
- C. Removes moisture
- D. Compresses gas

Answer: B

Q19. The evaporator is usually located:

- A. In front of the radiator
- B. Inside the dashboard
- C. Near the engine block

D. Under the car

Answer: B

Q20. Which component removes moisture from refrigerant?

A. Condenser

B. Receiver drier

C. Expansion valve

D. Compressor

Answer: B

Q21. The blower motor is used to:

A. Cool engine

B. Circulate air in the cabin

C. Reduce fuel consumption

D. Lubricate compressor

Answer: B

Q22. The cabin air filter is located:

A. Before the compressor

B. In air intake duct

C. Inside the condenser

D. In refrigerant pipe

Answer: B

Q23. The mode door in HVAC system controls:

A. Refrigerant flow

B. Engine speed

- C. Direction of airflow
- D. Pressure of refrigerant

Answer: C

Q24. In heating mode, warm air is produced using:

- A. Hot exhaust gases
- B. Hot engine coolant
- C. Hot compressor oil
- D. Hot radiator fan air

Answer: B

Q25. Recirculation flap helps to:

- A. Increase fuel efficiency
- B. Prevent refrigerant leakage
- C. Recirculate cabin air
- D. Increase compressor speed

Answer: C

Q26. The heater core works as:

- A. A compressor
- B. A small radiator
- C. An expansion valve
- D. A condenser

Answer: B

Q27. Hot engine coolant flows from which part to the heater core?

- A. Fuel tank

- B. Exhaust pipe
- C. Engine block / cylinder head
- D. Brake lines

Answer: C

Q28. The main source of heat for automobile heating system is:

- A. Battery
- B. Engine waste heat
- C. Outside air
- D. Exhaust muffler

Answer: B

Q29. The function of heater control valve is to:

- A. Control refrigerant pressure
- B. Control coolant flow to heater core
- C. Control speed of blower
- D. Control temperature sensor

Answer: B

Q30. The purpose of ventilation in a car is to:

- A. Heat the engine
- B. Supply fresh air
- C. Increase tyre pressure
- D. Improve acceleration

Answer: B

Q31. Which component removes dust before air enters the cabin?



- A. Expansion valve
- B. Condenser
- C. Cabin air filter
- D. Radiator

Answer: C

Q32. The blower motor in ventilation system is used to:

- A. Push refrigerant into condenser
- B. Draw in and circulate air
- C. Compress air
- D. Cool engine oil

Answer: B

Q33. The comfortable temperature range for most people is:

- A. 10–15°C
- B. 18–27°C
- C. 30–40°C
- D. 0–10°C

Answer: B

Q34. The ideal relative humidity for human comfort lies between:

- A. 10–20%
- B. 20–30%
- C. 40–60%
- D. 80–100%

Answer: C

Q35. Human comfort mainly depends on:

- A. Temperature only
- B. Humidity only
- C. Air motion only
- D. Temperature, humidity and air motion

Answer: D

Q36. High air velocity in a room causes:

- A. Better comfort
- B. Skin dryness
- C. Feeling of cold discomfort
- D. No effect

Answer: C

Q37. The comfort zone is shown on:

- A. T-S diagram
- B. P-V diagram
- C. Psychrometric chart
- D. Mollier diagram

Answer: C

Q38. Which refrigerant is most commonly used in modern car AC systems?

- A. R-12
- B. R-134a
- C. R-22
- D. R-410A

Answer: B

Q39. Which refrigerant is widely used now due to its low global warming potential?

- A. R-12
- B. R-1234yf
- C. R-404A
- D. R-717

Answer: B

Q40. Which property is important for a good refrigerant?

- A. High boiling point
- B. High toxicity
- C. High latent heat of vaporization
- D. High viscosity

Answer: C

Q41. Which refrigerant has zero ozone depletion potential?

- A. R-12
- B. R-134a
- C. R-1234yf
- D. Both B and C

Answer: D

Q42. Before charging refrigerant, the system should be:

- A. Heated
- B. Pressurized
- C. Evacuated
- D. Oiled

Answer: C

Q43. Why is vacuum created before charging refrigerant?

- A. To increase pressure
- B. To remove air and moisture
- C. To cool the pipes
- D. To test compressor speed

Answer: B

Q44. Which instrument is used to measure high and low side pressure?

- A. Thermometer
- B. Manifold gauge set
- C. Hydrometer
- D. Voltmeter

Answer: B

Q45. Overcharging refrigerant causes:

- A. Low pressure
- B. No cooling
- C. Higher system pressure
- D. Freezing of evaporator

Answer: C

Q46. The main function of the temperature control system is to:

- A. Control vehicle speed
- B. Maintain desired cabin temperature
- C. Control fuel injection

D. Reduce engine load

Answer: B

Q47. The temperature sensor in a car HVAC system senses:

A. Engine temperature

B. Outside temperature only

C. Cabin air temperature

D. Tyre temperature

Answer: C

Q48. In automatic climate control, temperature is controlled by:

A. Driver manually

B. ECU and sensors

C. Expansion valve only

D. Radiator

Answer: B

Q49. Which component controls mixed hot and cold air?

A. Compressor

B. Condenser

C. Blend door

D. Evaporator

Answer: C

Q50. The thermostat in an HVAC system is used to:

A. Control refrigerant pressure

- B. Sense cabin temperature
- C. Control compressor ON/OFF
- D. Control blower speed

Answer: C

Q51. Increasing blower speed will generally:

- A. Decrease cooling
- B. Increase cooling
- C. Stop compressor
- D. Increase humidity

Answer: B

Q52. Which component helps in dehumidification in AC?

- A. Condenser
- B. Evaporator
- C. Compressor
- D. Expansion valve

Answer: B

Q53. Dehumidification occurs when:

- A. Air passes over warm coil
- B. Air passes over cold evaporator coil
- C. Air passes through radiator
- D. Air flows at high speed

Answer: B

Q54. Moist air loses its moisture due to:

- A. Increase in pressure
- B. Condensation of vapor
- C. Increase in temperature
- D. Air compression

Answer: B

Q55. High humidity inside car cabin causes:

- A. Better comfort
- B. Faster cooling
- C. Fogging of glass
- D. Lower temperature

Answer: C

Q56. The device used to measure relative humidity is:

- A. Barometer
- B. Hygrometer
- C. Anemometer
- D. Manometer

Answer: B

Q57. Lower evaporator temperature results in:

- A. Poor humidity control
- B. Better dehumidification
- C. No cooling
- D. Compressor failure

Answer: B

Q58. The main purpose of a keyless entry system is to:

- A. Improve engine power
- B. Enable remote locking/unlocking of doors
- C. Increase fuel efficiency
- D. Control HVAC system

Answer: B

Q59. Which component sends the signal in a keyless entry system?

- A. Door actuator
- B. Car ECU
- C. Key fob (transmitter)
- D. Receiver motor

Answer: C

Q60. Keyless entry systems generally operate using:

- A. Infrared waves
- B. Bluetooth only
- C. Radio frequency signals
- D. Sound waves

Answer: C

Q61. Rolling code technology is used to:

- A. Increase signal range
- B. Reduce battery usage
- C. Prevent theft by code duplication
- D. Improve motor speed



Answer: C

Q62. The main function of an anti-theft system is to:

- A. Increase car speed
- B. Prevent unauthorized vehicle use
- C. Improve braking
- D. Improve suspension

Answer: B

Q63. An engine immobilizer works by:

- A. Locking steering wheel
- B. Cutting fuel or ignition system
- C. Locking doors
- D. Activating horn

Answer: B

Q64. Which sensor detects unauthorized entry into a car?

- A. Oxygen sensor
- B. Door sensor
- C. Temperature sensor
- D. MAF sensor

Answer: B

Q65. A vehicle immobilizer compares:

- A. Engine RPM
- B. Fuel pressure
- C. Key code with ECU data

D. Door position

Answer: C

Q66. Automatic door lock system locks doors when:

A. Car reaches certain speed

B. Engine starts

C. AC turns ON

D. Headlights turn ON

Answer: A

Q67. Automatic door locking usually activates at:

A. 5 km/h

B. 10–15 km/h

C. 40 km/h

D. 80 km/h

Answer: B

Q68. Which sensor supports automatic door locking?

A. Oxygen sensor

B. Speed sensor

C. Rain sensor

D. Temperature sensor

Answer: B

Q69. Central locking system is controlled by:

A. Radiator

B. Body Control Module (BCM)

C. Alternator

D. Fuel pump

Answer: B

Q70. The main function of a park assist system is to:

A. Increase braking power

B. Help driver park safely

C. Increase engine RPM

D. Boost battery power

Answer: B

Q71. Park assist system commonly uses:

A. Temperature sensors

B. Ultrasonic sensors

C. Pressure sensors

D. Oxygen sensors

Answer: B

Q72. Park assist warning is given by:

A. Engine sound

B. Dashboard lights only

C. Beeps and display

D. Horn only

Answer: C

Q73. Park assist sensors are mounted on:

A. Roof

- B. Side mirrors
- C. Front and rear bumpers
- D. Inside tyres

Answer: C

Q74. Automatic headlight dimming prevents:

- A. Battery discharge
- B. Dazzling of oncoming vehicles
- C. Engine overheating
- D. Fuel loss

Answer: B

Q75. Automatic headlight dimming works based on:

- A. Vehicle speed
- B. Ambient light and oncoming light
- C. Engine temperature
- D. Steering angle

Answer: B

Q76. Which sensor is used for automatic headlight dimming?

- A. Ultrasonic sensor
- B. Light sensor
- C. Oxygen sensor
- D. Speed sensor

Answer: B

Q77. Headlights switch from high beam to:

- A. Parking light
- B. Fog light
- C. Low beam
- D. OFF

Answer: C

Q78. GPS stands for:

- A. Global Position Sensor
- B. Global Position System
- C. General Position Satellite
- D. Geographical Position System

Answer: B

Q79. GPS is used for:

- A. Engine tuning
- B. Vehicle location tracking
- C. Fuel injection
- D. Airbag deployment

Answer: B

Q80. GPRS stands for:

- A. Global Packet Radio Service
- B. General Packet Routing System
- C. Global Position Radio Service
- D. General Position Routing System

Answer: A

Q81. GPS requires minimum how many satellites?

- A. 1
- B. 2
- C. 3
- D. 4

Answer: D

Q82. Which system works without mobile network?

- A. GPRS
- B. Bluetooth
- C. GPS
- D. Wi-Fi

Answer: C

Q1. The primary purpose of an automobile body is to:

- A. Increase engine efficiency
- B. Carry passengers and payload safely
- C. Reduce rolling resistance
- D. Improve fuel injection

Answer: B

Q2. The term “vehicle overhang” refers to:

- A. Distance between wheels
- B. Distance between front and rear axle
- C. Portion of body beyond wheelbase
- D. Height of the vehicle body

Answer: C

Q3. Which body construction offers better crash energy absorption?

- A. Ladder frame
- B. Body-on-frame
- C. Monocoque
- D. Tubular frame

Answer: C

Q4. Which parameter directly affects vehicle stability during cornering?

- A. Body color
- B. Center of gravity height
- C. Engine displacement
- D. Fuel type

Answer: B

Q5. A semi-monocoque body mainly uses:

- A. Wooden frame
- B. Separate chassis
- C. Reinforced sheet metal panels
- D. Plastic body shell

Answer: C

Q6. Which material is preferred for crumple zones?

- A. Cast iron
- B. High carbon steel
- C. Mild steel
- D. Brittle alloys

Answer: C

Q7. Which manufacturing process is commonly used for body panel shaping?

- A. Forging
- B. Casting
- C. Press forming
- D. Extrusion

Answer: C

Q8. Which defect is most likely after poor accidental repair?

- A. Increased torque
- B. Misalignment of body panels
- C. Better aerodynamics
- D. Reduced vibration

Answer: B

Q9. Which body part contributes maximum aerodynamic drag?

- A. Roof
- B. Front profile
- C. Doors
- D. Underbody

Answer: B

Q10. Streamlining of a vehicle body mainly improves:

- A. Cabin comfort
- B. Engine power



C. Fuel efficiency at high speed

D. Brake performance

Answer: C

Q11. Rolling resistance mainly depends on:

A. Engine speed

B. Tyre pressure and road surface

C. Air density

D. Vehicle color

Answer: B

Q12. Air resistance increases with:

A. Square of speed

B. Linear speed

C. Vehicle weight

D. Road gradient

Answer: A

Q13. Gradient resistance acts when vehicle:

A. Accelerates

B. Brakes

C. Moves on inclined road

D. Moves on flat road

Answer: C

Q14. Tractive effort must overcome:

A. Only rolling resistance

- B. Only air resistance
- C. All motion resistances
- D. Engine losses only

Answer: C

Q15. Which motion causes side-to-side tilting of vehicle body?

- A. Pitching
- B. Bouncing
- C. Rolling
- D. Yaw

Answer: C

Q16. Yaw motion occurs about:

- A. Longitudinal axis
- B. Vertical axis
- C. Lateral axis
- D. Wheel axis

Answer: B

Q17. Bouncing is mainly due to:

- A. Poor steering
- B. Uneven road surface
- C. Engine imbalance
- D. Brake failure

Answer: B

Q18. Sway is most noticeable during:

- A. Straight motion
- B. Sudden lane change
- C. Constant speed driving
- D. Engine idling

Answer: B

Q19. Which resistance exists even when vehicle is stationary?

- A. Rolling resistance
- B. Air resistance
- C. Gradient resistance
- D. Static resistance

Answer: C

Q20. Lower center of gravity improves:

- A. Fuel consumption
- B. Vehicle handling
- C. Engine power
- D. Brake wear

Answer: B

Q21. Which accessory improves aerodynamics?

- A. Mud flap
- B. Roof carrier
- C. Spoiler
- D. Side step

Answer: C

Q22. Vehicle drag coefficient depends on:

- A. Engine size
- B. Body shape
- C. Fuel quality
- D. Tyre size

Answer: B

Q23. Which panel protects engine compartment from cabin?

- A. Bonnet
- B. Firewall
- C. Fender
- D. Cowl

Answer: B

Q24. Galvanization of body panels is done to:

- A. Increase strength
- B. Improve appearance
- C. Prevent corrosion
- D. Reduce weight

Answer: C

Q25. Which coating is applied first during body painting?

- A. Clear coat
- B. Base coat
- C. Primer
- D. Enamel

Answer: C

Q26. Underbody coating is mainly applied to:

- A. Improve mileage
- B. Reduce corrosion
- C. Increase weight
- D. Reduce engine noise

Answer: B

Q27. Which body type offers maximum cargo space?

- A. Coupe
- B. Sedan
- C. Station wagon
- D. Convertible

Answer: C

Q28. Accident repair quality affects:

- A. Engine efficiency only
- B. Vehicle safety and alignment
- C. Fuel type
- D. Gear ratio

Answer: B

Q29. Spot welding is commonly used for:

- A. Engine block
- B. Body panel joining
- C. Suspension arms

D. Gear casing

Answer: B

Q30. Which metal offers best strength-to-weight ratio?

A. Cast iron

B. Mild steel

C. Aluminum alloy

D. Copper

Answer: C

Q31. Body rigidity helps in:

A. Better noise insulation

B. Improved handling and safety

C. Higher fuel consumption

D. Lower torque

Answer: B

Q32. Vehicle stability is least affected by:

A. Wheelbase

B. Track width

C. Body color

D. Center of gravity

Answer: C

Q33. Aerodynamic lift mainly affects:

A. Braking

B. Cornering stability

C. Engine cooling

D. Fuel injection

Answer: B

Q34. Which resistance dominates at low speed?

A. Air resistance

B. Rolling resistance

C. Gradient resistance

D. Wind resistance

Answer: B

Q35. Which body material reduces overall vehicle weight?

A. Cast iron

B. Steel

C. Aluminum

D. Brass

Answer: C

Q36. Which body structure improves passenger safety?

A. Rigid frame only

B. Crumple zone design

C. Thin panels

D. Open structure

Answer: B

Q37. Vehicle pitching occurs during:

A. Sudden acceleration or braking

B. Cornering

C. Side wind

D. Idling

Answer: A

Q38. Which force keeps tyres in contact with road?

A. Drag force

B. Traction

C. Lift force

D. Centrifugal force

Answer: B

Q39. Which shape offers minimum air drag?

A. Cubical

B. Rectangular

C. Streamlined

D. Cylindrical

Answer: C

Q40. Increased frontal area causes:

A. Lower air resistance

B. Higher drag force

C. Better stability

D. Lower fuel consumption

Answer: B

Q41. Which parameter affects tractive effort most?



- A. Tyre-road friction
- B. Paint quality
- C. Cabin volume
- D. Seat arrangement

Answer: A

Q42. Body accessories should not:

- A. Increase drag excessively
- B. Improve comfort
- C. Improve safety
- D. Improve utility

Answer: A

Q43. Which motion causes nose left-right movement?

- A. Pitch
- B. Roll
- C. Yaw
- D. Bounce

Answer: C

Q44. Vehicle resistance always opposes:

- A. Engine torque
- B. Vehicle motion
- C. Fuel injection
- D. Wheel rotation

Answer: B

Q45. Better streamlining mainly benefits:

- A. City driving
- B. Highway driving
- C. Parking
- D. Idling

Answer: B

Q46. Which body material is recyclable and lightweight?

- A. Steel
- B. Aluminum
- C. Cast iron
- D. Lead

Answer: B

Q47. Which panel reduces splash from wheels?

- A. Bonnet
- B. Mudguard
- C. Roof
- D. Door

Answer: B

Q48. Which resistance depends on slope angle?

- A. Rolling
- B. Air
- C. Gradient
- D. Tractive

Answer: C

Q49. Which force enables vehicle acceleration?

- A. Drag
- B. Resistance
- C. Traction
- D. Lift

Answer: C

Q50. Automobile body design directly influences:

- A. Gear ratios
- B. Engine firing order
- C. Safety and efficiency
- D. Fuel octane number

Answer: C

Q51. The main drawback of carbureted SI engines is:

- A. High fuel pressure requirement
- B. Poor fuel-air mixture control
- C. Complex electronics
- D. High initial cost

Answer: B

Q52. MPFI system injects fuel:

- A. Into carburetor
- B. Into exhaust manifold
- C. Near each intake valve

D. Directly into cylinder

Answer: C

Q53. Throttle Body Injection (TBI) is similar to:

A. Diesel injection

B. Carburetor system

C. Direct injection

D. CRDI

Answer: B

Q54. Port Fuel Injection (PFI) improves:

A. Engine weight

B. Fuel atomization

C. Cooling loss

D. Mechanical friction

Answer: B

Q55. MPFI system is controlled by:

A. Mechanical governor

B. ECU

C. Fuel pump only

D. Ignition coil

Answer: B

Q56. Which sensor measures throttle opening?

A. MAP sensor

B. TPS

C. Oxygen sensor

D. Knock sensor

Answer: B

Q57. Oxygen sensor is mounted in:

A. Intake manifold

B. Fuel rail

C. Exhaust manifold

D. Cylinder head

Answer: C

Q58. MAP sensor measures:

A. Air velocity

B. Manifold pressure

C. Fuel temperature

D. Coolant level

Answer: B

Q59. MAF sensor directly measures:

A. Air mass entering engine

B. Fuel quantity

C. Exhaust pressure

D. Engine speed

Answer: A

Q60. Knock sensor detects:

- A. Engine overheating
- B. Detonation
- C. Fuel leakage
- D. Low oil pressure

Answer: B

Q61. CRDI stands for:

- A. Controlled Rail Diesel Injection
- B. Common Rail Direct Injection
- C. Constant Rail Diesel Ignition
- D. Central Rail Direct Injection

Answer: B

Q62. The main advantage of CRDI engine is:

- A. Low injection pressure
- B. Mechanical simplicity
- C. Precise fuel control
- D. Carburetor use

Answer: C

Q63. In CRDI system, fuel pressure is generated by:

- A. Injector
- B. Fuel tank
- C. High-pressure pump
- D. ECU

Answer: C

Q64. Common rail acts as:

- A. Fuel return line
- B. Fuel storage and distributor
- C. Injector holder
- D. Pressure relief valve

Answer: B

Q65. CRDI injectors are operated by:

- A. Mechanical cam
- B. ECU-controlled solenoid
- C. Centrifugal force
- D. Vacuum pressure

Answer: B

Q66. Injection pressure in CRDI engines can exceed:

- A. 100 bar
- B. 300 bar
- C. 1000 bar
- D. 10 bar

Answer: C

Q67. Pilot injection in CRDI engines helps to:

- A. Increase noise
- B. Reduce knocking
- C. Reduce power
- D. Increase emissions

Answer: B

Q68. Multiple injections per cycle result in:

- A. Rough engine operation
- B. Better combustion control
- C. Fuel wastage
- D. Injector damage

Answer: B

Q69. CRDI engines are mostly used in:

- A. Petrol cars
- B. Two-wheelers
- C. Diesel vehicles
- D. Electric vehicles

Answer: C

Q70. CRDI system improves:

- A. Emissions and efficiency
- B. Engine size
- C. Vehicle weight
- D. Fuel viscosity

Answer: A

Q71. VGT stands for:

- A. Variable Gear Transmission
- B. Variable Geometry Turbocharger
- C. Variable Gas Technology
- D. Variable Gradient Turbine



Answer: B

Q72. VGT improves engine performance by:

- A. Controlling exhaust gas flow
- B. Reducing fuel pressure
- C. Cooling intake air
- D. Increasing engine size

Answer: A

Q73. VGT reduces:

- A. Turbo lag
- B. Fuel injection
- C. Compression ratio
- D. Engine torque

Answer: A

Q74. VVT system controls:

- A. Fuel pressure
- B. Ignition timing
- C. Valve opening timing
- D. Piston stroke

Answer: C

Q75. Main benefit of VVT is:

- A. Reduced engine speed
- B. Improved efficiency and power

C. Increased emissions

D. Higher friction

Answer: B

Q76. GDI stands for:

A. Gasoline Direct Injection

B. Gas Direct Ignition

C. General Diesel Injection

D. Gasoline Dual Injection

Answer: A

Q77. In GDI engines, fuel is injected:

A. In intake manifold

B. In carburetor

C. Directly into cylinder

D. In exhaust port

Answer: C

Q78. Stratified charge combustion helps in:

A. High fuel consumption

B. Lean burn operation

C. Engine overheating

D. Knocking

Answer: B

Q79. GDI engines mainly improve:

A. Vehicle weight

B. Fuel economy

C. Noise level

D. Lubrication

Answer: B

Q80. GDI engines require:

A. Low pressure pump only

B. High pressure fuel system

C. Carburetor

D. Mechanical governor

Answer: B

Q81. EGR stands for:

A. Engine Gas Reduction

B. Exhaust Gas Recirculation

C. Emission Gas Regulation

D. Exhaust Gas Release

Answer: B

Q82. EGR reduces:

A. CO emissions

B. HC emissions

C. NOx emissions

D. SO2 emissions

Answer: C

Q83. EGR works by:

- A. Increasing combustion temperature
- B. Reducing oxygen concentration
- C. Increasing air flow
- D. Increasing fuel flow

Answer: B

Q84. PCV system prevents:

- A. Fuel leakage
- B. Oil sludge formation
- C. Brake failure
- D. Injector clogging

Answer: B

Q85. Evaporative emission control system reduces:

- A. Exhaust smoke
- B. Fuel vapor loss
- C. Engine noise
- D. Oil consumption

Answer: B

Q86. Main advantage of electric vehicles is:

- A. High emissions
- B. Zero tailpipe emissions
- C. High noise
- D. Complex gearbox

Answer: B

Q87. EV propulsion system uses:

- A. Internal combustion engine
- B. Electric motor
- C. Turbine
- D. Hydraulic pump

Answer: B

Q88. Most commonly used EV battery is:

- A. Lead acid
- B. Nickel cadmium
- C. Lithium-ion
- D. Zinc air

Answer: C

Q89. Battery Management System (BMS) is used to:

- A. Increase vehicle speed
- B. Monitor and protect battery
- C. Charge fuel
- D. Reduce vehicle weight

Answer: B

Q90. Regenerative braking converts:

- A. Heat to sound
- B. Electrical energy to heat
- C. Kinetic energy to electrical energy
- D. Chemical energy to heat

Answer: C

Q91. Electric motors in EVs are preferred because they:

- A. Require gearboxes
- B. Provide instant torque
- C. Produce noise
- D. Use fuel

Answer: B

Q92. Charging infrastructure for EVs includes:

- A. Fuel pumps
- B. Charging stations
- C. Carburetors
- D. Injectors

Answer: B

Q93. EVs generally have:

- A. Higher maintenance than IC engines
- B. Fewer moving parts
- C. Complex transmissions
- D. Exhaust systems

Answer: B

Q94. Range of EV mainly depends on:

- A. Vehicle color
- B. Battery capacity
- C. Tyre size

D. Headlamp type

Answer: B

Q95. One limitation of EVs is:

A. High torque

B. Quiet operation

C. Charging time

D. Zero emissions

Answer: C

Q96. Lithium-ion batteries are preferred due to:

A. High weight

B. Low energy density

C. High energy density

D. Memory effect

Answer: C

Q97. Thermal management of EV battery is important to:

A. Improve aesthetics

B. Prevent overheating

C. Increase noise

D. Increase voltage

Answer: B

Q98. EV layout eliminates:

A. Electric motor

B. Fuel tank

- C. Battery pack
- D. Power electronics

Answer: B

Q99. Electric motor efficiency is generally:

- A. Lower than IC engine
- B. Same as IC engine
- C. Higher than IC engine
- D. Negligible

Answer: C

Q100. EVs contribute to:

- A. Higher pollution
- B. Sustainable transportation
- C. Increased noise
- D. Fuel dependency

Answer: B

Q101. HVAC system in a car is mainly designed to:

- A. Cool the engine
- B. Improve fuel economy
- C. Maintain cabin comfort
- D. Control exhaust emissions

Answer: C

Q102. The term HVAC stands for:

- A. High Velocity Air Cooling



B. Heating, Ventilation and Air Conditioning

C. Hot Vapor Air Circulation

D. Hydraulic Ventilation and Cooling

Answer: B

Q103. Refrigeration in car AC system works on:

A. Heat addition principle

B. Heat absorption principle

C. Heat radiation principle

D. Heat conduction principle

Answer: B

Q104. The refrigerant absorbs heat in:

A. Condenser

B. Compressor

C. Evaporator

D. Receiver drier

Answer: C

Q105. The main objective of ventilation is to:

A. Reduce engine heat

B. Supply fresh air to cabin

C. Increase cooling capacity

D. Improve fuel efficiency

Answer: B

Q106. Vapour compression cycle consists of how many main components?

- A. Two
- B. Three
- C. Four
- D. Five

Answer: C

Q107. Which component compresses low-pressure refrigerant?

- A. Condenser
- B. Compressor
- C. Evaporator
- D. Expansion valve

Answer: B

Q108. Heat is rejected to atmosphere in:

- A. Evaporator
- B. Compressor
- C. Condenser
- D. Receiver

Answer: C

Q109. Expansion valve causes:

- A. Increase in pressure
- B. Decrease in pressure
- C. Increase in temperature
- D. Compression of refrigerant

Answer: B

Q110. Refrigerant enters the evaporator as:

- A. High-pressure liquid
- B. Low-pressure liquid
- C. High-pressure vapor
- D. Superheated vapor

Answer: B

Q111. Compressor in AC system is driven by:

- A. Electric motor only
- B. Crankshaft pulley
- C. Cooling fan
- D. Battery directly

Answer: B

Q112. Condenser is usually located:

- A. Inside dashboard
- B. Under car floor
- C. In front of radiator
- D. Near fuel tank

Answer: C

Q113. Receiver-drier performs which function?

- A. Compress refrigerant
- B. Absorb heat
- C. Remove moisture and impurities
- D. Control air flow

Answer: C

Q114. Evaporator is installed:

- A. In engine compartment
- B. Inside passenger cabin
- C. Near exhaust system
- D. Below fuel tank

Answer: B

Q115. Expansion valve controls:

- A. Air flow rate
- B. Refrigerant flow rate
- C. Blower speed
- D. Compressor speed

Answer: B

Q116. Car heating system utilizes heat from:

- A. Exhaust gases
- B. Engine coolant
- C. Battery
- D. Radiator fan

Answer: B

Q117. Heater core functions similar to:

- A. Condenser
- B. Evaporator
- C. Radiator

D. Compressor

Answer: C

Q118. Heater control valve regulates:

A. Refrigerant pressure

B. Coolant flow to heater core

C. Air velocity

D. Blower motor speed

Answer: B

Q119. Heating system is most effective when:

A. Engine is cold

B. Engine reaches operating temperature

C. AC is OFF

D. Vehicle is stationary

Answer: B

Q120. Heating system does NOT require:

A. Coolant circulation

B. Heater core

C. Compressor

D. Blower motor

Answer: C

Q121. Blower motor is used to:

A. Compress refrigerant

B. Circulate air inside cabin

- C. Cool condenser
- D. Control humidity

Answer: B

Q122. Cabin air filter removes:

- A. Moisture
- B. Dust and pollen
- C. Refrigerant
- D. Exhaust gases

Answer: B

Q123. Fresh air mode allows:

- A. Cabin air circulation
- B. Outside air intake
- C. No air circulation
- D. Only hot air

Answer: B

Q124. Recirculation mode is preferred:

- A. During heavy traffic
- B. During rain
- C. During parking
- D. During engine warm-up

Answer: A

Q125. Ventilation system mainly improves:

- A. Engine efficiency
- B. Passenger comfort
- C. Fuel quality
- D. Brake performance

Answer: B

Q126. Human comfort depends mainly on:

- A. Temperature only
- B. Humidity only
- C. Temperature, humidity and air motion
- D. Noise level

Answer: C

Q127. Comfortable temperature inside car cabin is:

- A. 5–10°C
- B. 15–18°C
- C. 18–27°C
- D. 30–40°C

Answer: C

Q128. Ideal relative humidity for comfort is:

- A. 10–20%
- B. 20–30%
- C. 40–60%
- D. 80–90%

Answer: C

Q129. High humidity causes:

- A. Better cooling
- B. Faster sweat evaporation
- C. Discomfort and fogging
- D. No effect

Answer: C

Q130. Comfort zone is represented using:

- A. PV diagram
- B. TS diagram
- C. Psychrometric chart
- D. Mollier diagram

Answer: C

Q131. Refrigerant used should have:

- A. High toxicity
- B. High flammability
- C. Chemical stability
- D. High viscosity

Answer: C

Q132. Eco-friendly refrigerants are selected based on:

- A. Color
- B. Cost only
- C. Low ODP and GWP
- D. Odor

Answer: C



Q133. R-1234yf is preferred due to:

- A. High pressure
- B. High toxicity
- C. Low global warming potential
- D. High cost

Answer: C

Q134. Refrigerant leakage is dangerous because it:

- A. Increases cooling
- B. Reduces oxygen in closed spaces
- C. Improves AC efficiency
- D. Reduces noise

Answer: B

Q135. Refrigerant should never be released into:

- A. Condenser
- B. Receiver
- C. Atmosphere
- D. Compressor

Answer: C

Q136. Refrigerant charging is done after:

- A. Heating the system
- B. Evacuating the system
- C. Removing compressor
- D. Opening condenser

Answer: B

Q137. Vacuum pump is used to:

- A. Add refrigerant
- B. Remove air and moisture
- C. Increase pressure
- D. Test cooling

Answer: B

Q138. Overcharging refrigerant leads to:

- A. Low pressure
- B. Compressor overload
- C. Improved cooling
- D. No effect

Answer: B

Q139. Under-charging refrigerant results in:

- A. Excess cooling
- B. Reduced cooling
- C. Higher pressure
- D. Compressor damage

Answer: B

Q140. Temperature control system maintains:

- A. Engine temperature
- B. Cabin temperature

- C. Fuel temperature
- D. Battery temperature

Answer: B

Q141. Dehumidification occurs when air passes over:

- A. Hot heater core
- B. Cold evaporator
- C. Condenser
- D. Radiator

Answer: B

Q142. Moisture removal prevents:

- A. Engine overheating
- B. Glass fogging
- C. Fuel loss
- D. Battery damage

Answer: B

Q143. Humidity control improves:

- A. Engine power
- B. Passenger comfort
- C. Tyre life
- D. Fuel quality

Answer: B

Q144. Lower evaporator temperature results in:

- A. Poor cooling

- B. Better dehumidification
- C. Higher humidity
- D. Compressor failure

Answer: B

Q145. HVAC system integrates heating, cooling and:

- A. Ignition
- B. Ventilation
- C. Fuel injection
- D. Braking

Answer: B

Q146. Keyless entry systems mainly improve:

- A. Engine performance
- B. Driver convenience
- C. Fuel efficiency
- D. Brake response

Answer: B

Q147. The transmitter used in keyless entry is powered by:

- A. Vehicle battery
- B. Alternator
- C. Coin cell battery
- D. ECU

Answer: C

Q148. Keyless entry receiver is generally mounted:

- A. Inside key fob
- B. Inside BCM
- C. Near door actuator
- D. Near fuel tank

Answer: B

Q149. Rolling code system enhances:

- A. Signal strength
- B. Security against hacking
- C. Door motor speed
- D. Battery life

Answer: B

Q150. Immobilizer system prevents:

- A. Door unlocking
- B. Unauthorized engine start
- C. Fuel filling
- D. Battery charging

Answer: B

Q151. Automatic door lock system is activated based on:

- A. Engine RPM
- B. Vehicle speed
- C. Fuel level
- D. AC operation

Answer: B

Q152. Central locking system locks:

- A. Only driver door
- B. All doors simultaneously
- C. Bonnet only
- D. Boot only

Answer: B

Q153. The main controller of central locking system is:

- A. ECU
- B. BCM
- C. Alternator
- D. Fuse box

Answer: B

Q154. Automatic unlocking in accidents is triggered by:

- A. Speed sensor
- B. Airbag control unit
- C. ABS sensor
- D. GPS module

Answer: B

Q155. Door actuator converts:

- A. Electrical energy into mechanical motion
- B. Mechanical motion into electrical energy
- C. Heat into motion
- D. Pressure into voltage

Answer: A

Q156. Park assist system helps mainly during:

- A. Highway driving
- B. Overtaking
- C. Parking maneuver
- D. Acceleration

Answer: C

Q157. Park assist sensors operate on:

- A. Infrared waves
- B. Ultrasonic waves
- C. Radio waves
- D. Light waves

Answer: B

Q158. The distance is measured by park assist using:

- A. Signal frequency change
- B. Echo time delay
- C. Voltage variation
- D. Resistance change

Answer: B

Q159. Park assist warning intensity increases when:

- A. Speed increases
- B. Distance decreases
- C. Engine heats

D. Fuel reduces

Answer: B

Q160. Park assist improves:

A. Fuel efficiency

B. Parking safety

C. Engine power

D. Gear shifting

Answer: B

Q161. Automatic headlight dimming avoids:

A. Battery drain

B. Driver fatigue

C. Dazzling effect

D. Headlamp heating

Answer: C

Q162. Automatic headlight dimming is based on:

A. Engine speed

B. Ambient light intensity

C. Fuel pressure

D. Brake force

Answer: B

Q163. Photodiode sensor is used to detect:

A. Temperature

B. Pressure



C. Light

D. Humidity

Answer: C

Q164. High beam is automatically changed to low beam when:

A. Road is empty

B. Oncoming vehicle is detected

C. Speed increases

D. Rain occurs

Answer: B

Q165. Automatic headlight ON/OFF system improves:

A. Driving convenience

B. Fuel economy

C. Engine cooling

D. Tyre life

Answer: A

Q166. GPS helps in:

A. Engine diagnostics

B. Vehicle navigation

C. Brake control

D. Fuel injection

Answer: B

Q167. GPS works using:

A. Mobile towers

- B. Satellites
- C. Bluetooth signals
- D. Wi-Fi network

Answer: B

Q168. Minimum satellites required for accurate GPS position are:

- A. Two
- B. Three
- C. Four
- D. Five

Answer: C

Q169. GPRS is mainly used for:

- A. Offline maps
- B. Internet-based data transfer
- C. Satellite communication
- D. Voice calls only

Answer: B

Q170. GPS system accuracy depends on:

- A. Vehicle speed
- B. Number of satellites
- C. Fuel type
- D. Battery voltage

Answer: B

Q171. Seat belts are classified as:

- A. Active safety
- B. Passive safety
- C. Electronic safety
- D. Structural safety

Answer: B

Q172. Airbags deploy during:

- A. Normal braking
- B. Minor collision
- C. Severe impact
- D. Engine overheating

Answer: C

Q173. Airbag sensors detect:

- A. Vehicle speed
- B. Sudden deceleration
- C. Fuel leakage
- D. Engine temperature

Answer: B

Q174. ABS prevents:

- A. Brake overheating
- B. Wheel locking
- C. Fuel wastage
- D. Engine stall

Answer: B

Q175. ABS mainly improves:

- A. Straight-line speed
- B. Steering control during braking
- C. Engine torque
- D. Suspension travel

Answer: B

Q176. Electronic Stability Control (ESC) prevents:

- A. Engine knocking
- B. Skidding
- C. Overheating
- D. Brake fading

Answer: B

Q177. ESC works using:

- A. Engine sensors only
- B. Brake and yaw sensors
- C. Fuel injectors
- D. AC sensors

Answer: B

Q178. Collapsible steering column is used to:

- A. Improve steering feel
- B. Absorb impact during crash
- C. Increase rigidity
- D. Reduce weight

Answer: B

Q179. Crumple zones are designed to:

- A. Increase stiffness
- B. Absorb collision energy
- C. Improve aerodynamics
- D. Reduce drag

Answer: B

Q180. Central locking contributes to:

- A. Passenger safety
- B. Engine efficiency
- C. Fuel economy
- D. Suspension performance

Answer: A

Q181. Active safety systems aim to:

- A. Reduce injury after crash
- B. Prevent accidents
- C. Improve aesthetics
- D. Reduce emissions

Answer: B

Q182. Passive safety systems are effective:

- A. Before accident
- B. During accident
- C. After engine start

D. During parking

Answer: B

Q183. Safety devices increase:

A. Vehicle cost only

B. Driving risk

C. Occupant protection

D. Engine load

Answer: C

Q184. Advanced safety systems rely heavily on:

A. Mechanical linkages

B. Sensors and electronics

C. Carburetors

D. Manual controls

Answer: B

Q185. Combination of ABS and ESC improves:

A. Ride comfort

B. Vehicle stability

C. Engine output

D. Fuel quality

Answer: B

Q186. The primary function of an oxygen sensor is to:

A. Measure engine temperature

B. Monitor air-fuel ratio

- C. Detect engine speed
- D. Measure fuel pressure

Answer: B

Q187. Oxygen sensor output is generally in the form of:

- A. Current
- B. Resistance
- C. Voltage
- D. Frequency

Answer: C

Q188. Engine coolant temperature sensor is usually a:

- A. Capacitive sensor
- B. Hall effect sensor
- C. Thermistor
- D. Piezo sensor

Answer: C

Q189. Intake air temperature sensor mainly affects:

- A. Ignition timing
- B. Fuel quantity calculation
- C. Brake operation
- D. Gear shifting

Answer: B

Q190. Throttle Position Sensor (TPS) detects:

- A. Air velocity
- B. Throttle angle
- C. Engine temperature
- D. Fuel pressure

Answer: B

Q191. MAP sensor measures:

- A. Mass air flow
- B. Absolute intake manifold pressure
- C. Fuel pressure
- D. Exhaust pressure

Answer: B

Q192. Vehicle Speed Sensor (VSS) provides input to:

- A. Fuel pump only
- B. Speedometer and ECU
- C. Battery charging system
- D. Ignition coil

Answer: B

Q193. MAF sensor malfunction can cause:

- A. Brake failure
- B. Poor fuel economy
- C. Steering stiffness
- D. AC failure

Answer: B



Q194. Knock sensor is used to protect engine from:

- A. Overheating
- B. Detonation
- C. Oil leakage
- D. Valve damage

Answer: B

Q195. Crankshaft Position Sensor helps ECU to determine:

- A. Engine load
- B. Piston position and speed
- C. Fuel pressure
- D. Exhaust composition

Answer: B

Q196. Multimeter is used in sensor testing to measure:

- A. Only voltage
- B. Only resistance
- C. Voltage, current and resistance
- D. Pressure only

Answer: C

Q197. An open-circuit sensor will show:

- A. Zero resistance
- B. Infinite resistance
- C. Normal voltage
- D. Low temperature

Answer: B

Q198. A faulty TPS can cause:

- A. Hard steering
- B. Hesitation during acceleration
- C. Battery discharge
- D. Brake locking

Answer: B

Q199. Incorrect sensor signals may lead to:

- A. Wrong ECU decisions
- B. Improved mileage
- C. Higher engine power
- D. Reduced emissions

Answer: A

Q200. Sensor failure is commonly detected using:

- A. Screwdriver
- B. Scan tool
- C. Hammer
- D. Feeler gauge

Answer: B

Q201. Actuators convert:

- A. Mechanical energy into electrical
- B. Electrical signals into mechanical action
- C. Heat into electricity
- D. Pressure into temperature

Answer: B

Q202. Fuel injector is an example of:

- A. Sensor
- B. Actuator
- C. Controller
- D. Switch

Answer: B

Q203. Injector opening is controlled by:

- A. Fuel pump
- B. ECU
- C. Battery
- D. Ignition switch

Answer: B

Q204. Injector “click” sound test checks:

- A. Fuel quality
- B. Electrical operation of injector
- C. Fuel pressure
- D. Spray pattern

Answer: B

Q205. Injector resistance is measured using:

- A. Ammeter
- B. Ohmmeter

C. Voltmeter

D. Pressure gauge

Answer: B

Q206. OBD stands for:

A. On-Board Device

B. On-Board Diagnostics

C. Open Board Diagnostics

D. Output Based Diagnostics

Answer: B

Q207. OBD-II system monitors:

A. Only engine speed

B. Only emissions

C. Vehicle systems and emissions

D. Battery condition only

Answer: C

Q208. Malfunction Indicator Lamp (MIL) glows when:

A. Fuel tank is empty

B. A fault is detected by ECU

C. Engine is cold

D. Headlights are ON

Answer: B

Q209. OBD-II connector is used to:

A. Charge battery

- B. Read fault codes
- C. Tune engine mechanically
- D. Replace ECU

Answer: B

Q210. Flash codes were used in:

- A. OBD-III
- B. Pre-OBD systems
- C. EV systems
- D. GPS systems

Answer: B

Q211. DTCs are standardized under:

- A. ISO standards
- B. SAE J2012
- C. BS standards
- D. AIS standards

Answer: B

Q212. A 5-digit DTC consists of:

- A. Letters only
- B. Numbers only
- C. Letters and numbers
- D. Symbols only

Answer: C

Q213. First letter of DTC indicates:

- A. Severity of fault
- B. Vehicle manufacturer
- C. System affected
- D. Repair cost

Answer: C

Q214. DTC starting with “P” relates to:

- A. Body system
- B. Chassis system
- C. Powertrain
- D. Network system

Answer: C

Q215. DTC starting with “B” indicates fault in:

- A. Engine
- B. Body system
- C. Braking system
- D. Transmission

Answer: B

Q216. ECU stores DTCs in:

- A. RAM
- B. ROM
- C. Non-volatile memory
- D. Cache memory

Answer: C

Q217. Clearing DTCs without repair may:

- A. Permanently solve fault
- B. Hide actual problem temporarily
- C. Improve engine power
- D. Reduce fuel consumption

Answer: B

Q218. Diagnostic scan tool communicates with ECU using:

- A. Mechanical link
- B. Pneumatic line
- C. Digital communication protocol
- D. Hydraulic system

Answer: C

Q219. Proper diagnosis reduces:

- A. Repair accuracy
- B. Repair time and cost
- C. Engine efficiency
- D. Vehicle safety

Answer: B

Q220. Correct diagnosis mainly depends on:

- A. Guesswork
- B. Sensor data interpretation
- C. Trial-and-error replacement
- D. Vehicle color

Answer: B

1. Which refrigerant replaced R-134a in most modern car HVAC systems due to environmental concerns?

- A) R-12
- B) R-22
- C) R-1234yf
- D) R-410A

✔ **Answer: C**

2. The main environmental problem caused by old refrigerants like R-12 was:

- A) Global warming only
- B) Ozone layer depletion
- C) Acid rain
- D) Water pollution

✔ **Answer: B**

3. Which gas from car AC systems contributes to global warming?

- A) Oxygen
- B) Carbon dioxide
- C) Refrigerant gas
- D) Nitrogen

✔ **Answer: C**

4. The Global Warming Potential (GWP) of R-1234yf is:

- A) Very high
- B) Moderate
- C) Very low
- D) Zero

✔ **Answer: C**

5. Which safety device protects the AC system from over-pressure?

- A) Evaporator
- B) Condenser



C) Pressure relief valve

D) Receiver dryer

✓ **Answer: C**

6. Which of the following is a personal safety precaution for AC servicing?

A) Wearing loose clothes

B) Avoiding goggles

C) Wearing gloves and safety glasses

D) Disconnecting battery is unnecessary

✓ **Answer: C**

7. Refrigerant leaks are dangerous mainly because they:

A) Smell bad

B) Are expensive

C) Reduce oxygen level in closed areas

D) Make engine noisy

✓ **Answer: C**

8. Which tool is used to detect refrigerant leakage?

A) Thermostat

B) Manifold gauge

C) Leak detector

D) Ammeter

✓ **Answer: C**

9. Why should refrigerant never be vented into the atmosphere?

A) It damages compressor

B) It increases cooling

C) It harms the environment

D) It reduces airflow

✓ **Answer: C**

10. Which component removes moisture from the refrigerant?

A) Condenser

B) Receiver-drier

C) Compressor

D) Expansion valve

✓ **Answer: B**

11. Refrigeration is the process of:

A) Heating a space

B) Cooling a space below atmospheric temperature

C) Removing humidity

D) Supplying hot air

✓ **Answer: B**

12. The working fluid in refrigeration is called:

A) Coolant

B) Refrigerant

C) Lubricant

D) Water

✓ **Answer: B**

13. In an air conditioning system, the main function of the evaporator is to:

A) Compress gas

B) Absorb heat

C) Reject heat

D) Pump refrigerant

✓ **Answer: B**

14. Which component increases the pressure of the refrigerant?

A) Condenser

B) Compressor

C) Evaporator

D) Expansion valve

✓ **Answer: B**

15. Air conditioning controls all except:

A) Temperature

B) Humidity

C) Air cleanliness

D) Fuel consumption

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✓ **Answer: D**

16. The SI unit of refrigeration capacity is:

- A) Watt B) Joule C) Watt or kW
- D) Pascal

✓ **Answer: C**

17. The function of a condenser in an AC system is to:

- A) Absorb heat
- B) Reject heat to atmosphere
- C) Increase pressure
- D) Reduce temperature only

✓ **Answer: B**

18. The device used to measure temperature is:

- A) Hygrometer
- B) Barometer
- C) Thermometer
- D) Anemometer

✓ **Answer: C**

19. Relative humidity is defined as:

- A) Amount of dry air
- B) Amount of moisture compared to maximum moisture air can hold
- C) Air pressure difference
- D) Cooling capacity

✓ **Answer: B**

20. Air-conditioning is different from refrigeration because it also controls:

- A) Pressure
- B) Only temperature
- C) Humidity and air purity
- D) Speed of air

✓ **Answer: C**

21. The vapour compression cycle has how many main components?

- A) 2
- B) 3
- C) 4
- D) 5

✓ **Answer: C**

22. The function of the expansion valve is to:

- A) Increase pressure
- B) Decrease pressure
- C) Absorb heat
- D) Reject heat

✓ **Answer: B**

23. In which component does refrigerant absorb heat?

- A) Condenser
- B) Compressor
- C) Evaporator
- D) Expansion valve

✓ **Answer: C**

24. Which process occurs in the compressor?

- A) Heat absorption
- B) Condensation
- C) Isentropic compression
- D) Throttling

✓ **Answer: C**

25. Heat rejection occurs in the:

- A) Evaporator
- B) Compressor
- C) Condenser
- D) Expansion device

✓ **Answer: C**

26. In a vapour compression cycle, the refrigerant leaves the evaporator as:

- A) Liquid
- B) Superheated vapour
- C) Subcooled liquid
- D) Wet vapour

✓ **Answer: B**

27. The expansion process occurs at:

- A) Constant pressure
- B) Constant temperature
- C) Constant enthalpy
- D) Constant volume

✓ **Answer: C**

28. The refrigerant enters condenser as:

- A) Low pressure liquid
- B) High pressure vapour
- C) Low pressure vapour
- D) High pressure liquid

✓ **Answer: B**

29. Which cycle is used in car AC systems?

- A) Steam power cycle
- B) Vapour absorption cycle
- C) Vapour compression cycle
- D) Rankine cycle

✓ **Answer: C**

30. COP of a refrigeration system is defined as:

- A) Work done / Heat absorbed
- B) Heat rejected / Work input
- C) Heat absorbed / Work input
- D) Work input / Heat rejected

✓ **Answer: C**

1. The main function of the compressor in a car AC system is to:

- A) Store refrigerant
- B) Increase pressure of refrigerant
- C) Cool the refrigerant
- D) Absorb heat from cabin

✔ **Answer: B**

2. Which component converts high-pressure refrigerant gas into liquid?

- A) Evaporator
- B) Compressor
- C) Condenser
- D) Receiver drier

✔ **Answer: C**

3. The expansion valve in the AC system:

- A) Increases refrigerant temperature
- B) Reduces refrigerant pressure
- C) Removes moisture
- D) Compresses gas

✔ **Answer: B**

4. The evaporator is usually located:

- A) In front of the radiator
- B) Inside the dashboard
- C) Near the engine block
- D) Under the car

✔ **Answer: B**

5. Which component removes moisture from refrigerant?

- A) Condenser
- B) Receiver-drier
- C) Expansion valve
- D) Compressor

✔ **Answer: B**

6. Refrigerant in a car AC absorbs heat inside the:

- A) Condenser
- B) Compressor
- C) Evaporator
- D) Receiver drier

✓ **Answer: C**

7. Which of the following is NOT a part of a car AC system?

- A) Condenser
- B) Evaporator
- C) Fuel injector
- D) Compressor

✓ **Answer: C**

8. The blower motor is used to:

- A) Cool engine
- B) Circulate air in the cabin
- C) Reduce fuel consumption
- D) Lubricate compressor

✓ **Answer: B**

9. The cabin air filter is located:

- A) Before the compressor
- B) In air intake duct
- C) Inside the condenser
- D) In refrigerant pipe

✓ **Answer: B**

10. The mode door in HVAC system controls:

- A) Refrigerant flow
- B) Engine speed
- C) Direction of airflow
- D) Pressure of refrigerant

✓ **Answer: C**

11. In heating mode, warm air is produced using:

- A) Hot exhaust gases
- B) Hot engine coolant
- C) Hot compressor oil
- D) Hot radiator fan air

✓ **Answer: B**

12. Recirculation flap helps to:

- A) Increase fuel efficiency
- B) Prevent refrigerant leakage
- C) Recirculate cabin air
- D) Increase compressor speed

✓ **Answer: C**

13. In defrost mode, air is mainly directed towards:

- A) Rear seats
- B) Side doors
- C) Windshield
- D) Floor

✓ **Answer: C**

14. The heater core works as:

- A) A compressor
- B) A small radiator
- C) An expansion valve
- D) A condenser

✓ **Answer: B**

15. Hot engine coolant flows from which part to the heater core?

- A) Fuel tank
- B) Exhaust pipe
- C) Engine block / cylinder head
- D) Brake lines

✓ **Answer: C**



16. The main source of heat for automobile heating system is:

- A) Battery
- B) Engine waste heat
- C) Outside air
- D) Exhaust muffler

✓ **Answer: B**

17. The function of heater control valve is to:

- A) Control refrigerant pressure
- B) Control coolant flow to heater core
- C) Control speed of blower
- D) Control temperature sensor

✓ **Answer: B**

18. The purpose of ventilation in a car is to:

- A) Heat the engine
- B) Supply fresh air
- C) Increase tyre pressure
- D) Improve acceleration

✓ **Answer: B**

19. Which component removes dust before air enters the cabin?

- A) Expansion valve
- B) Condenser
- C) Cabin air filter
- D) Radiator

✓ **Answer: C**

20. The blower motor in ventilation system is used to:

- A) Push refrigerant into condenser
- B) Draw in and circulate air
- C) Compress air
- D) Cool engine oil

✓ **Answer: B**

1. The comfortable temperature range for most people is:

- A) 10–15°C
- B) 18–27°C
- C) 30–40°C
- D) 0–10°C

✓ **Answer: B**

2. The ideal relative humidity for human comfort lies between:

- A) 10–20%
- B) 20–30%
- C) 40–60%
- D) 80–100%

✓ **Answer: C**

3. High air velocity in a room causes:

- A) Better comfort
- B) Skin dryness
- C) Feeling of cold discomfort
- D) No effect

✓ **Answer: C**

4. Human comfort mainly depends on:

- A) Temperature only
- B) Humidity only
- C) Air motion only
- D) Temperature, humidity and air motion

✓ **Answer: D**

5. Which of the following reduces body heat through evaporation?

- A) Radiation
- B) Conduction
- C) Evaporation of sweat

D) Convection

✓ **Answer: C**

6. The ideal air velocity for human comfort in air conditioning is:

A) 0.1 – 0.25 m/s

B) 1 – 2 m/s

C) 4 – 5 m/s

D) 10 m/s

✓ **Answer: A**

7. High relative humidity causes:

A) Faster sweat evaporation

B) Slower sweat evaporation C

) Body cooling increases

D) No effect on comfort

✓ **Answer: B**

8. Which factor does NOT affect human comfort directly?

A) Air temperature

B) Noise level

C) Relative humidity

D) Air movement

✓ **Answer: B**

9. Human body loses maximum heat through:

A) Evaporation

B) Radiation

C) Conduction

D) Respiration

✓ **Answer: B**

10. The comfort zone is shown on:

A) T–S diagram

B) P–V diagram

C) Psychrometric chart

D) Mollier diagram

✓ **Answer: C**

11. Which refrigerant is most commonly used in modern car AC systems?

A) R-12

B) R-134a

C) R-22

D) R-410A

✓ **Answer: B**

12. Which refrigerant is widely used now due to its low global warming potential (GWP)?

A) R-12

B) R-1234yf

C) R-404A

D) R-717

✓ **Answer: B**

13. The main reason R-12 was banned is because it:

A) Is expensive

B) Causes ozone depletion

C) Has low efficiency

D) Causes corrosion

✓ **Answer: B**

14. Which property is important for a good refrigerant?

A) High boiling point

B) High toxicity

C) High latent heat of vaporization

D) High viscosity

✓ **Answer: C**

15. Which of the following refrigerants is ozone-friendly?

A) R-12

B) R-22

C) R-1234yf D) R-11 ✓ **Answer: C**

16. Which refrigerant has *zero Ozone Depletion Potential (ODP)*?

- A) R-12 B) R-134a
- C) R-1234yf
- D) Both B and C

✓ **Answer: D**

17. The chemical name of R-134a is:

- A) Dichlorodifluoromethane
- B) Tetrafluoroethane
- C) Chlorodifluoromethane
- D) Ammonia

✓ **Answer: B**

18. Which refrigerant has very low Global Warming Potential compared to R-134a?

- A) R-22
- B) R-12
- C) R-1234yf
- D) R-407C

✓ **Answer: C**

19. The refrigerant used should be:

- A) Highly flammable
- B) Highly toxic
- C) Chemically stable
- D) Highly corrosive

✓ **Answer: C**

20. Which refrigerant is non-toxic and non-flammable?

- A) R-717 (Ammonia)
- B) R-12
- C) R-134a
- D) R-600a

✓ **Answer: C**

1. Before charging refrigerant, the system should be:

- A) Heated
- B) Pressurized
- C) Evacuated
- D) Oiled

✓ **Answer: C**

2. Why is vacuum created before charging refrigerant?

- A) To increase pressure
- B) To remove air and moisture
- C) To cool the pipes
- D) To test compressor speed

✓ **Answer: B**

3. Which instrument is used to measure high and low side pressure during charging?

- A) Thermometer
- B) Manifold gauge set
- C) Hydrometer
- D) Voltmeter

✓ **Answer: B**

4. Undercharging the AC system results in:

- A) Excess cooling
- B) Compressor damage
- C) Reduced cooling effect
- D) Frost on condenser

✓ **Answer: C**

5. Overcharging the refrigerant causes:

- A) Low pressure
- B) No cooling
- C) Higher system pressure
- D) Freezing of evaporator

✓ **Answer: C**

6. Refrigerant should be charged in which state through the low-pressure side?

- A) Solid
- B) Liquid
- C) Vapor
- D) Plasma

✔ **Answer: C**

7. Which component indicates correct refrigerant level in older systems?

- A) Sight glass
- B) Thermostat
- C) Clutch coil
- D) Fan motor

✔ **Answer: A**

8. Which safety precaution is necessary during refrigerant charging?

- A) Keep system near fire
- B) Wear safety gloves and goggles
- C) Touch refrigerant directly
- D) Work in closed room

✔ **Answer: B**

9. The standard method of charging refrigerant in car AC is based on:

- A) Time method
- B) Pressure method
- C) Weight method
- D) Temperature method

✔ **Answer: C**

10. After charging, which step should be performed?

- A) Disconnect compressor belt
- B) Check for leaks
- C) Switch off blower
- D) Open expansion valve

✔ **Answer: B**

11. The main function of the temperature control system is to:

- A) Control vehicle speed
- B) Maintain desired cabin temperature
- C) Control fuel injection
- D) Reduce engine load

✓ **Answer: B**

12. The temperature sensor in a car HVAC system senses:

- A) Engine temperature
- B) Outside temperature only
- C) Cabin air temperature
- D) Tyre temperature

✓ **Answer: C**

13. In automatic climate control, temperature is controlled by:

- A) Driver manually
- B) ECU and sensors
- C) Expansion valve only
- D) Radiator

✓ **Answer: B**

14. Which component controls mixed hot and cold air?

- A) Compressor
- B) Condenser
- C) Blend door
- D) Evaporator

✓ **Answer: C**

15. The thermostat in an HVAC system is used to:

- A) Control refrigerant pressure
- B) Sense cabin temperature
- C) Control compressor ON/OFF
- D) Control blower speed

✓ **Answer: C**

1. The main purpose of a keyless entry system is to:

- A) Improve engine power



- B) Enable remote locking/unlocking of doors
- C) Increase fuel efficiency
- D) Control HVAC system

✔ **Answer: B**

2. Which component sends the signal in a keyless entry system?

- A) Door actuator
- B) Car ECU
- C) Key fob (Transmitter)
- D) Receiver motor

✔ **Answer: C**

3. Keyless entry systems generally operate using:

- A) Infrared waves
- B) Bluetooth only
- C) Radio Frequency (RF) signals
- D) Sound waves

✔ **Answer: C**

4. In a keyless entry system, the receiver is located:

- A) Inside the key
- B) Inside the door lock
- C) Inside the vehicle body
- D) Near the battery

✔ **Answer: C**

5. Rolling code technology is used in keyless systems to:

- A) Increase signal range
- B) Reduce battery usage
- C) Prevent theft by code duplication
- D) Improve door motor speed

✔ **Answer: C**

6. The main function of an anti-theft system is to:

- A) Increase car speed
- B) Prevent unauthorized vehicle use

- C) Improve braking
- D) Improve suspension

✔ **Answer: B**

7. An engine immobilizer works by:

- A) Locking the steering wheel
- B) Cutting fuel or ignition system
- C) Locking the doors
- D) Activating the horn

✔ **Answer: B**

9. Which sensor detects unauthorised entry into a car?

- A) Oxygen sensor
- B) Door sensor
- C) Temperature sensor
- D) MAF sensor

✔ **Answer: B**

10. A vehicle immobilizer compares the:

- A) Engine RPM
- B) Fuel pressure
- C) Key code with ECU data
- D) Door position

✔ **Answer: C**

11. Automatic door lock system function is to:

- A) Lock doors when car reaches a certain speed
- B) Lock only driver's door
- C) Prevent engine overheating
- D) Increase tyre pressure

✔ **Answer: A**

12. In many cars, automatic door locking activates when speed crosses:

- A) 5 km/h
- B) 10–15 km/h

C) 40 km/h

D) 80 km/h

✓ **Answer: B**

13. Which sensor supports automatic door locking?

A) Oxygen sensor

B) Speed sensor

C) Rain sensor

D) Temperature sensor

✓ **Answer: B**

14. The central locking system is controlled by:

A) Radiator

B) Body Control Module (BCM)

C) Alternator

D) ECU only

✓ **Answer: B**

15. Automatic unlocking usually happens:

A) When AC is turned off

B) When airbags deploy

C) When speed increases

D) When headlights turn on

✓ **Answer: B**

16. The main function of a park assist system is to:

A) Increase braking power

B) Help driver park safely

C) Increase engine RPM

D) Boost battery power

✓ **Answer: B**

17. Park assist system uses which type of sensor most commonly?

A) Temperature sensor

B) Ultrasonic sensor

C) Pressure sensor

D) Oxygen sensor

✓ **Answer: B**

18. The park assist system gives warning through:

A) Engine sound

B) Dashboard lights only

C) Beeps and display indication

D) Horn only

✓ **Answer: C**

19. In automatic park assist, steering is controlled by:

A) Driver

B) Steering ECU

C) Brake system

D) GPS ✓ **Answer: B**

20. Park assist sensors are usually mounted on:

A) Roof of the car

B) Side mirrors

C) Front and rear bumpers

D) Inside tyres

✓ **Answer: C**

1. The main purpose of automatic headlight dimming is to:

A) Increase battery voltage

B) Prevent dazzling of oncoming vehicles

C) Make headlights brighter

D) Improve fuel economy

✓ **Answer: B**

2. Automatic headlight dimming mainly works based on:

A) Vehicle speed

B) Ambient light and oncoming vehicle light intensity

C) Engine temperature

D) Steering angle

✓ **Answer: B**

3. Which sensor is used in automatic headlight dimming?

A) Ultrasonic sensor

B) Light sensor / Photodiode

C) Oxygen sensor

D) Speed sensor

✓ **Answer: B**

4. When an oncoming vehicle is detected, the headlight system automatically switches from:

A) Low beam to fog beam

B) Low beam to parking light

C) High beam to low beam

D) High beam to off

✓ **Answer: C**

5. The control of automatic dimming is handled by:

A) Ignition switch

B) Driver manually

C) Body Control Module (BCM)

D) Dashboard switch only

✓ **Answer: C**

7. The time delay in automatic headlight system is mainly used to:

A) Save fuel

B) Prevent frequent switching due to sudden light changes

C) Increase headlamp brightness

D) Reduce engine load

✓ **Answer: B**

8. Which sensor supports automatic ON/OFF headlights?

A) Rain sensor B) Light sensor

- C) Speed sensor
- D) Temperature sensor

✓ **Answer: B**

9. The headlight usually turns ON automatically when:

- A) Sunlight is strong
- B) Car is parked
- C) Ambient light falls below a set level
- D) Speed increases

✓ **Answer: C**

10. The “Follow-me-home” headlight feature is related to:

- A) Fog lights operation
- B) Automatic delay OFF headlight
- C) Brake light operation
- D) Turn signal system

✓ **Answer: B**

11. GPS stands for:

- A) Global Position Sensor
- B) Global Position System
- C) Geographical Position Satellite
- D) General Position System

✓ **Answer: B**

12. GPS system helps in:

- A) Engine tuning
- B) Vehicle location tracking
- C) Fuel injection
- D) Airbag deployment

✓ **Answer: B**

13. GPRS is mainly used in cars for:

- A) Wireless braking system
- B) Mobile data communication

C) Cooling system control

D) Engine lubrication

✓ **Answer: B**

14. GPRS stands for:

A) Global Packet Radio Service

B) General Packet Routing System

C) Global Position Radio Service

D) General Position Routing System

✓ **Answer: A**

15. Which component receives GPS signals from satellites?

A) ECU

B) GPS receiver/antenna

C) BCM

D) Engine sensor

✓ **Answer: B**

16. GPS requires how many satellites minimum for accurate positioning?

A) 1

B) 2

C) 3

D) 4

✓ **Answer: D**

17. GPRS mainly helps in:

A) Offline navigation only

B) Real-time traffic updates and internet services

C) Headlamp brightness control

D) Fuel pressure regulation

✓ **Answer: B**

18. Which system works without mobile network?

A) GPRS

B) Bluetooth

C) GPS

D) Wi-Fi

✓ **Answer: C**

19. GPS navigation uses:

A) Sound waves

B) Radio waves

C) Infrared waves

D) Magnetic waves

✓ **Answer: B**

20. GPS system accuracy mainly depends on:

A) Vehicle color

B) Number of satellites visible

C) Battery voltage

D) Tyre pressure

✓ **Answer: B**

Q1. HVAC stands for:

A) Heating, Ventilation and Air Conditioning

B) High Voltage Air Cooling

C) Heating, Vapour and AC

D) Heater Ventilation Application

Answer: A) Heating, Ventilation and Air Conditioning

Q2. Blower motor function is:

A) Flow refrigerant

B) Circulate air

C) Compress refrigerant

D) Heat coolant



Answer: B) Circulate air

Q3. Evaporator is located in:

A) Engine bay

B) Condenser area

C) Cabin dashboard

D) Fuel tank

Answer: C) Cabin dashboard

Q4. Which controls airflow direction?

A) Expansion valve

B) Air vents

C) Condenser

D) Compressor

Answer: B) Air vents

Q5. Recirculation mode:

A) Brings fresh air always

B) Reuses inside air

C) Stops blower

D) Heats engine

Answer: B) Reuses inside air

Q6. Car heating system uses heat from:

A) Exhaust gas

B) Battery

C) Engine coolant

D) Radiator fan

Answer: C) Engine coolant

Q7. Heater core acts like:

A) Condenser

B) Evaporator

C) Radiator

D) Compressor

Answer: C) Radiator

Q8. Ventilation system helps in:

A) Increasing engine power

B) Air circulation and fresh air supply

C) Fuel injection

D) Improving mileage

Answer: B) Air circulation and fresh air supply

Q9. Blend door is used for:

A) Mixing hot and cold air

B) Compressing refrigerant

C) Filtering air

D) Cooling engine

Answer: A) Mixing hot and cold air

Q10. Heater valve controls:

A) Fuel supply

B) Coolant flow

C) Air flow

D) Oil pressure

Answer: B) Coolant flow

Q11. Comfortable temperature range for car occupants is:

A) 5–10°C

B) 18–26°C

C) 30–40°C

D) Above 45°C

Answer: B) 18–26°C

Q12. Comfort humidity range is:

A) 10–20%

B) 30–60%

C) 70–90%

D) 90–100%

Answer: B) 30–60%

Q13. Human comfort depends on:

A) Temperature only

B) Humidity only

C) Temperature, humidity, air movement

D) Sunlight only

Answer: C) Temperature, humidity, air movement

Q14. High humidity causes:

- A) Excess cooling
- B) Sweating and discomfort
- C) Cold sensation
- D) No effect

Answer: B) Sweating and discomfort

Q15. Air movement improves comfort by:

- A) Increasing sweating
- B) Increasing evaporation of sweat
- C) Increasing humidity
- D) Stopping heat loss

Answer: B) Increasing evaporation of sweat

Q1. Which refrigerant is currently used in most modern cars?

- A) R12
- B) R22
- C) R134a
- D) Ammonia

Answer: C) R134a

Q2. Eco-friendly refrigerant is:

- A) R1234yf
- B) R12
- C) R500
- D) R11

Answer: A) R1234yf

Q3. Main property of refrigerant:

- A) Non-toxic
- B) Non-flammable
- C) High latent heat
- D) All of the above

Answer: D) All of the above

Q4. Which refrigerant has very low GWP?

- A) R134a
- B) R1234yf
- C) R22
- D) R410A

Answer: B) R1234yf

Q5. Refrigerant should have:

- A) High boiling point
- B) Low boiling point
- C) High density
- D) Poor heat transfer

Answer: B) Low boiling point

Q6. Refrigerant charging is done:

- A) In liquid form
- B) In gaseous form
- C) Both
- D) Solid form

Answer: C) Both

Q7. Overcharging results in:

- A) Poor cooling
- B) High compressor load
- C) Both A and B
- D) Engine stall

Answer: C) Both A and B

Q8. Undercharging causes:

- A) Ice formation
- B) Reduced cooling
- C) Compressor noise
- D) All of the above

Answer: B) Reduced cooling

Q9. Which tool is used for charging?

- A) Vacuum pump
- B) Manifold gauge set
- C) Screwdriver
- D) Multimeter

Answer: B) Manifold gauge set

Q10. Before charging, system should be:

- A) Washed
- B) Dried and evacuated
- C) Filled with oil

D) Heated

Answer: B) Dried and evacuated

Q10. Before charging, system should be:

A) Washed

B) Dried and evacuated

C) Filled with oil

D) Heated

Answer: B) Dried and evacuated

Q11. Thermostat is used to:

A) Control engine speed

B) Control cabin temperature

C) Control blower speed

D) Control fuel flow

Answer: B) Control cabin temperature

Q12. Humidity is reduced by:

A) Heater core

B) Evaporator

C) Compressor

D) Condenser

Answer: B) Evaporator

Q13. Climate control system is:

A) Manual control

B) Automatic control

C) Mechanical only

D) Electrical only

Answer: B) Automatic control

Q14. Cabin temperature sensor measures:

A) Engine temperature

B) Outside temperature

C) Inside temperature

D) Refrigerant temperature

Answer: C) Inside temperature

Q15. Dehumidification occurs when:

A) Air passes through evaporator

B) Air passes through heater

C) Fan stops

D) Air is recirculated

Answer: A) Air passes through evaporator

Q16. Keyless entry works using:

A) Bluetooth only

B) Infrared or RF signal

C) Wired connection

D) Mechanical link

Answer: B) Infrared or RF signal

Q17. Immobilizer prevents:

A) Door locking



B) Engine starting without authorized key

C) Fuel filling

D) Brake operation

Answer: B) Engine starting without authorized key

Q19. Central locking system:

A) Locks all doors together

B) Locks only driver door

C) Locks engine

D) Locks boot only

Answer: A) Locks all doors together

Q20. Anti-theft alarm activates when:

A) Ignition ON

B) Unauthorized attempt detected

C) AC ON

D) Door closed normally

Answer: B) Unauthorized attempt detected

Q21. Parking sensors use:

A) Infrared waves

B) Ultrasonic waves

C) Radio waves

D) Microwave

Answer: B) Ultrasonic waves

Q22. Park assist helps in:

- A) Lane changing
- B) Accurate parking
- C) Fuel control
- D) Suspension control

Answer: B) Accurate parking

Q24. Automatic headlight sensor detects:

- A) Engine temperature
- B) Light intensity
- C) Vehicle speed
- D) Obstacle distance

Answer: B) Light intensity

Q25. Automatic dimming works using:

- A) Ultrasonic sensor
- B) Light sensor
- C) Speed sensor
- D) Temperature sensor

Answer: B) Light sensor

Q26. Delay off headlight means:

- A) Light stays ON after ignition OFF
- B) Light stays ON while driving
- C) Light OFF immediately
- D) Light blinks

Answer: A) Light stays ON after ignition OFF

Q27. GPS stands for:

- A) Global Positioning System
- B) General Packet System
- C) Global Power Steering
- D) Graphical Position System

Answer: A) Global Positioning System

Q28. GPRS is used for:

- A) Navigation calculation
- B) Data transmission
- C) Vehicle braking
- D) Parking

Answer: B) Data transmission

Q29. GPS works using:

- A) Mobile towers
- B) Satellites
- C) Radar
- D) Infrared

Answer: B) Satellites

Q30. Sealed beam headlamp means:

- A) Bulb can be replaced separately
- B) Entire unit is sealed and replaced together
- C) Only lens is sealed
- D) Reflector is open

Answer: B) Entire unit is sealed and replaced together

Q31. Main parts of sealed beam headlamp are:

- A) Bulb & battery

B) Lens, reflector, filament

C) Switch & relay

D) Fuse & horn

Answer: B) Lens, reflector, filament

Q32. Dazzle occurs due to:

A) Low beam

B) High beam

C) Parking light

D) Fog lamp

Answer: B) High beam

Q33. Anti-dazzle mirror helps reduce:

A) Engine noise

B) Glare from rear vehicles

C) Fuel consumption

D) Headlight brightness

Answer: B) Glare from rear vehicles

Q34. Beam control is achieved by:

A) Adjusting headlamp angle

B) Changing colour

C) Changing battery

D) Changing horn

Answer: A) Adjusting headlamp angle

Q35. Air bag inflates mainly during:

A) Side impact

B) Rear collision

C) Frontal collision

D) Minor vibration

Answer: C) Frontal collision

Q36. Air bags inflate within:

A) 1 second

B) 0.1 to 0.3 seconds

C) 2 seconds

D) After engine stops

Answer: B) 0.1 to 0.3 seconds

Q37. Which sensor is used to detect crash?

A) Temperature sensor

B) Impact sensor

C) Oxygen sensor

D) Speed sensor

Answer: B) Impact sensor

Q38. Which gas is commonly used for airbag inflation?

A) Nitrogen

B) Oxygen

C) Hydrogen

D) Carbon monoxide

Answer: A) Nitrogen

Q39. SRS stands for:

A) Safety Restraint System

B) Supplemental Restraint System

C) Secure Restrain System

D) Safety Response System

Answer: B) Supplemental Restraint System

Q40. Seat belt prevents:

- A) Vehicle rollover
- B) Occupant ejection during crash
- C) Engine failure
- D) Tyre burst

Answer: B) Occupant ejection during crash

Q41. Three-point seat belt includes:

- A) Lap belt only
- B) Shoulder belt only
- C) Lap and shoulder belt
- D) Neck support

Answer: C) Lap and shoulder belt

Q42. Seat belt pretensioner function is to:

- A) Loosen belt
- B) Tighten belt during collision
- C) Protect engine
- D) Activate air bag only

Answer: B) Tighten belt during collision

Q43. Which material is used in seat belts?

- A) Rubber
- B) Nylon
- C) Steel
- D) Cotton

Answer: B) Nylon

Q44. Load limiter helps to:

- A) Increase belt force
- B) Reduce chest injury
- C) Increase speed

D) Prevent engine overheating

Answer: B) Reduce chest injury

Q45. Central locking allows:

A) Only driver door locking

B) All doors to be locked/unlocked together

C) Only boot door locking

D) Engine locking

Answer: B) All doors to be locked/unlocked together

Q46. Central locking system works using:

A) Hydraulic actuators

B) Pneumatic actuators

C) Electrical actuators

D) Mechanical rods only

Answer: C) Electrical actuators

Q47. Remote key system transmits signals via:

A) Wires

B) RF waves

C) Sound waves

D) Light waves

Answer: B) RF waves

Q48. Main purpose of collapsible steering is to:

A) Improve steering efficiency

B) Absorb impact energy during crash

C) Increase vehicle speed

D) Reduce fuel consumption

Answer: B) Absorb impact energy during crash

Q49. In a frontal crash, rigid steering column can:

A) Protect driver

- B) Increase driver injuries
- C) Lock the brakes
- D) Control vehicle direction

Answer: B) Increase driver injuries

Q50. Collapsible steering column uses:

- A) Solid steel rod
- B) Breakaway sleeve / telescopic arrangement
- C) Plastic shaft
- D) Rubber coupling only

Answer: B) Breakaway sleeve / telescopic arrangement

Q51. Purpose of ABS is to:

- A) Increase brake wear
- B) Prevent wheel locking during braking
- C) Increase stopping distance
- D) Reduce fuel consumption

Answer: B) Prevent wheel locking during braking

Q52. ABS works by:

- A) Locking all wheels
- B) Pumping the brakes manually
- C) Modulating brake pressure automatically
- D) Switching off brakes

Answer: C) Modulating brake pressure automatically

Q53. Which sensor is used in ABS?

- A) Pressure sensor
- B) Wheel speed sensor
- C) Temperature sensor
- D) Oxygen sensor



Answer: B) Wheel speed sensor

Q54. ABS mainly improves:

- A) Steering control during braking
- B) Engine power
- C) Air conditioning
- D) Mileage

Answer: A) Steering control during braking

Q55. ESC is used to:

- A) Prevent engine overheating
- B) Prevent skidding and loss of control
- C) Improve air conditioning
- D) Increase speed

Answer: B) Prevent skidding and loss of control

Q56. ESC functions by:

- A) Applying brakes to individual wheels
- B) Turning off engine
- C) Locking steering
- D) Increasing tyre pressure

Answer: A) Applying brakes to individual wheels

Q57. ESC uses which sensors?

- A) Engine RPM sensor only
- B) Yaw rate, steering angle and wheel speed sensors
- C) Fuel sensors only
- D) Temperature sensors only

Answer: B) Yaw rate, steering angle and wheel speed sensors

Q58. ESC mainly helps during:

- A) Straight driving
- B) Driving in curves/slippery roads

C) Vehicle washing

D) Parking

Answer: B) Driving in curves/slippery roads

Q59. Which system works together with ABS to improve control?

A) Power steering

B) ESC

C) AC system

D) Horn

Answer: B) ESC

Q60. Which safety device reduces head and chest injuries?

A) Air bag

B) Fuse

C) GPS

D) Tyre

Answer: A) Air bag

Q61. Which provides primary safety?

A) Seat belt

B) Air bag

C) ESC

D) Central locking

Answer: A) Seat belt

Q62. Which prevents car from rolling back on slopes?

A) Hill Hold Control

B) Central locking

C) ABS

D) Air bag

Answer: A) Hill Hold Control

1. What is the main function of an automobile body?

- A) Improve engine performance
- B) Support electrical systems
- C) Provide space for passengers and goods
- D) Increase fuel consumption

Answer: ☒ C) Provide space for passengers and goods

2. What is the term used for the lower part of the vehicle which includes the frame and suspension system?

- A) Roof panel
- B) Chassis
- C) Bonnet
- D) Firewall

Answer: ☒ B) Chassis

3. Which part of the body separates the engine compartment from the passenger compartment?

- A) Dash panel
- B) Firewall
- C) Bonnet
- D) Radiator grill

Answer: ☒ B) Firewall

4. A Monocoque body construction means:

- A) The body and frame are separate
- B) The body is built on a wooden frame
- C) The body and chassis are integrated
- D) The body is made only of plastic

Answer: ☒ C) The body and chassis are integrate

5. Which type of automobile body is commonly used in sports and racing cars?

- A) Hatchback
- B) Convertible
- C) Coupe
- D) SUV

Answer: ☒ C) Coupe

6. What is the primary material used in conventional automobile body construction?

A) Copper

B) Plastic

C) Steel

D) Aluminum

Answer: ☒ C) Steel

7. Which of the following is not a vehicle body type?

A) Sedan

B) Limousine

C) Transmission

D) Hatchback

Answer: ☒ C) Transmission

8. In which type of body construction is the frame and body built as one unit?

A) Body-on-frame

B) Semi-monocoque

C) Monocoque

D) Ladder frame

Answer: ☒ C) Monocoque

9. Which specification is not typically included when comparing vehicle bodies?

A) Fuel tank capacity

B) Seating capacity

C) Boot space

D) Number of doors

Answer: ☒ A) Fuel tank capacity

10. What is a characteristic of a “convertible” car body?

A) Has no engine compartment

B) Fixed metal roof

C) Retractable or removable roof

D) Only two wheels

Answer: ☒ C) Retractable or removable roof

11. Which of the following is a feature of a “station wagon” vehicle?

A) Small luggage space

B) Two seats only

C) Extended rear cargo area D

) No rear window

Answer: ☒ C) Extended rear cargo area

12. What is the typical body type of a heavy goods vehicle (HGV)?

A) Coupe

B) SUV

C) Truck body

D) Sedan

Answer: ☒ C) Truck body

13. What does “SUV” stand for?

A) Super Utility Van

B) Standard Utility Vehicle

C) Sports Utility Vehicle

D) Special Use Vehicle

Answer: ☒ C) Sports Utility Vehicle

14. In body construction, what is the primary purpose of crumple zones?

A) Reduce fuel consumption

B) Provide comfort

C) Absorb impact energy in collisions

D) Add aesthetic design

Answer: ☒ C) Absorb impact energy in collisions

15. Which of the following vehicles is typically built with a body-on-frame construction?

- A) Hatchback
- B) SUV
- C) Coupe
- D) Convertible

Answer: ☒ B) SUV

16. Which of the following materials is most commonly used in automobile body construction?

- A) Copper
- B) Mild Steel
- C) Brass
- D) Zinc

Answer: ☒ B) Mild Steel

17. Aluminium is used in automobile bodies mainly because of its:

- A) High cost
- B) High weight
- C) Corrosion resistance and lightweight
- D) High strength only

Answer: ☒ C) Corrosion resistance and lightweight

18. Which material is primarily used in high-performance and luxury cars due to its strength-to-weight ratio?

- A) Mild steel
- B) Cast iron
- C) Carbon fiber
- D) PVC

Answer: ☒ C) Carbon fiber

19. What is the purpose of galvanization in automotive body panels?

- A) Improve paint quality
- B) Reduce body weight
- C) Prevent rusting
- D) Increase thickness

Answer: ☒ C) Prevent rusting

20. The first step in vehicle body fabrication is usually:

- A) Painting
- B) Welding
- C) Cutting and shaping sheet metal
- D) Sanding

Answer: ☒ C) Cutting and shaping sheet metal

21. Which type of welding is most commonly used in automobile body repair?

- A) Arc welding
- B) Gas welding
- C) TIG welding
- D) MIG welding

Answer: ☒ D) MIG welding

22. What is a common tool used for reshaping dented metal during accident repair?

- A) Hacksaw
- B) Dent puller
- C) Lathe
- D) Drill machine

Answer: ☒ B) Dent puller

23. In accidental repairs, which of the following processes is used to smoothen the damaged surface before painting?

- A) Drilling
- B) Sanding
- C) Welding
- D) Hammering Answer:

☒ B) Sanding

24. The function of primer in body painting is to:

- A) Increase thickness
- B) Provide color

C) Improve paint adhesion and prevent rust

D) Make it waterproof Answer:

☒ C) Improve paint adhesion and prevent rust

25. Which body accessory helps reduce wind resistance and improve aerodynamics?

A) Bumper

B) Spoiler

C) Mudguard

D) Sunroof

Answer: ☒ B) Spoiler

26. Which of the following is not considered a body accessory?

A) Fog lights

B) Roof rails

C) Chassis

D) Side mirrors

Answer: ☒ C) Chassis

27. What is the main function of a car's bumper?

A) Improve aesthetics

B) Absorb impact during minor collisions

C) Support headlights

D) Help with fuel efficiency

Answer: ☒ B) Absorb impact during minor collisions

28. The purpose of mud flaps on a vehicle is to:

A) Enhance speed B) Reduce noise

C) Prevent mud and debris from hitting the body

D) Reduce emissions

Answer: ☒ C) Prevent mud and debris from hitting the body

29. Side view mirrors are mainly used for:

A) Decoration



- B) Increasing speed
- C) Rear and side visibility for safe lane changing
- D) Engine cooling

Answer: ☒ C) Rear and side visibility for safe lane changing

30. What is the function of roof rails on a vehicle?

- A) Decoration only
- B) Improve aerodynamics
- C) Carry luggage or cargo on the roof
- D) Support the windshield

Answer: ☒ C) Carry luggage or cargo on the roof

31. What is the main benefit of streamlining a vehicle body?

- A) Better lighting
- B) Lower manufacturing cost
- C) Reduction in air resistance
- D) More passenger space

Answer: ☒ C) Reduction in air resistance

32. Air resistance acting on a vehicle is also known as:

- A) Gradient resistance
- B) Rolling resistance
- C) Aerodynamic drag
- D) Inertial resistance

Answer: ☒ C) Aerodynamic drag

33. Which shape offers the least air resistance for vehicles at high speed?

- A) Rectangular
- B) Cubical
- C) Streamlined (teardrop-shaped)
- D) Square

Answer: ☒ C) Streamlined (teardrop-shaped)

34. What does rolling resistance depend on most?

- A) Wind speed
- B) Tyre material and road surface
- C) Engine size
- D) Number of passengers

Answer: ☒ B) Tyre material and road surface

35. Gradient resistance is encountered when:

- A) Vehicle is in motion on a flat road
- B) Vehicle moves downhill only
- C) Vehicle climbs an incline
- D) Vehicle accelerates on a straight road

Answer: ☒ C) Vehicle climbs an incline

36. What is the formula for tractive resistance in basic terms?

- A) Rolling + Gradient + Air resistance
- B) Rolling – Air resistance
- C) Gradient  $\times$  Rolling
- D) Engine power  $\div$  Weight

Answer: ☒ A) Rolling + Gradient + Air resistance

37. The force available between the tyre and the road surface to move the vehicle forward is called:

- A) Drag force
- B) Gradient force
- C) Traction
- D) Resistance

Answer: ☒ C) Traction

38. Tractive effort is defined as:

- A) Resistance caused by gravity
- B) Force required to overcome all resistances and move the vehicle
- C) Power output of the engine

D) Braking force Answer: ☒ B) Force required to overcome all resistances and move the vehicle

39. Which of the following is not a type of resistance faced by a vehicle?

A) Air resistance

B) Rolling resistance

C) Lateral resistance

D) Gradient resistance

Answer: ☒ C) Lateral resistance

40. Which of the following increases when a vehicle travels at high speed?

A) Rolling resistance

B) Air resistance

C) Gradient resistance

D) Tractive effort

Answer: ☒ B) Air resistance

41. Pitching is the movement of the vehicle about its:

A) Longitudinal axis

B) Lateral axis (side to side)

C) Vertical axis

D) Center of gravity

Answer: ☒ B) Lateral axis (front up/down)

42. Rolling refers to the movement about the:

A) Vertical axis

B) Lateral axis

C) Longitudinal axis

D) Horizontal plane

Answer: ☒ C) Longitudinal axis (side-to-side tilting)

43. Yaw is the movement of the vehicle around the:

A) Vertical axis

B) Lateral axis

C) Horizontal axis

D) Front axle

Answer: ☒ A) Vertical axis (left or right turn of the nose)

44. Bouncing occurs due to:

A) Poor lighting

B) Steering misalignment

C) Poor suspension or uneven roads

D) Overinflated tyres

Answer: ☒ C) Poor suspension or uneven roads

45. Sway refers to:

A) Up and down motion

B) Side-to-side motion of the whole body

C) Rotating motion

D) Forward acceleration

Answer: ☒ B) Side-to-side motion of the whole body

46. The primary purpose of applying anticorrosive treatment to a vehicle body is to:

A) Improve fuel efficiency

B) Enhance engine performance

C) Prevent rust and corrosion

D) Improve aerodynamics

Answer: ☒ C) Prevent rust and corrosion

47. Which of the following is the first step in the vehicle painting process?

A) Top coat application

B) Priming

C) Surface cleaning and sanding

D) Clear coat application

Answer: ☒ C) Surface cleaning and sanding

48. Which type of coating is applied immediately after surface cleaning to prevent corrosion?

A) Clear coat

B) Primer

C) Base coat

D) Top coat Answer: ☒

B) Primer 49. Which layer of paint provides the actual color and aesthetic appearance of the vehicle?

A) Base coat

B) Clear coat

C) Primer

D) Epoxy coating

Answer: ☒ A) Base coat

50. The clear coat in painting is used to:

A) Add thickness to paint

B) Increase friction

C) Protect the base coat and give gloss

D) Prevent fire hazards

**Answer: C) Protect the base coat and give gloss**

51. What is the primary chemical used for rustproofing underbody parts?

A) Paint thinner

B) Epoxy resin

C) Zinc phosphate

D) Engine oil

**Answer: C) Zinc phosphate**

52. Which of the following is not a method of anticorrosive treatment?

A) Galvanizing

B) Phosphating

C) Painting

D) Welding

**Answer: D) Welding**

53. What is the name of the process in which a car body is dipped into a bath for anti-corrosion coating?

A) Electroplating

B) Dip coating

C) Electro-deposition (ED) coating

D) Spot welding

**Answer: C) Electro-deposition (ED) coating**

54. During repainting, what is usually done before applying a new coat of paint?

- A) Wash with plain water
- B) Wet sanding and removing old paint
- C) Engine tuning
- D) Apply base coat directly

**Answer: B) Wet sanding and removing old paint**

55. Which tool is commonly used to apply paint in auto body shops?

- A) Paintbrush
- B) Sanding block
- C) Spray gun
- D) Welding torch

**Answer: C) Spray gun**

56. What is the main purpose of polishing after painting or repainting?

- A) Remove the paint
- B) Soften the metal
- C) Improve surface finish and shine
- D) Reduce weight

**Answer: C) Improve surface finish and shine**

57. Which type of paint is most commonly used in modern automobile painting?

- A) Acrylic enamel
- B) Water-based emulsion
- C) Latex paint
- D) Oil-based paint

**Answer: A) Acrylic enamel**

58. What can cause paint blistering after painting?

- A) Low humidity
- B) Proper drying
- C) Moisture or contaminants under paint
- D) Polishing the surface

**Answer: C) Moisture or contaminants under paint**

59. In multi-layer painting, the layer applied to smooth out imperfections before base coat is called:

- A) Primer
- B) Putty / filler

- C) Clear coat
- D) Epoxy layer

**Answer: B) Putty / filler**

60. Which part of the vehicle is most prone to corrosion?

- A) Roof
- B) Bonnet
- C) Underbody and wheel arches
- D) Windows

**Answer: C) Underbody and wheel arches**

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- D) Clear coat application

**Answer: C) Surface cleaning and sanding**

63. Which type of coating is applied immediately after surface cleaning to prevent corrosion?

- A) Clear coat
- B) Primer
- C) Base coat
- D) Top coat

**Answer: B) Primer**

64. Which layer of paint provides the actual color and aesthetic appearance of the vehicle?

- A) Base coat
- B) Clear coat
- C) Primer
- D) Epoxy coating

**Answer: A) Base coat**

65. The clear coat in painting is used to:

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- C) Painting
- D) Welding

**Answer: D) Welding**

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- D) Epoxy layer

**Answer: B) Putty / filler**

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- A) Roof
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- D) Windows

**Answer: C) Underbody and wheel arches**

76. What is a major drawback of a carbureted SI engine?

- A) Precise air-fuel control
- B) High fuel efficiency
- C) Poor cold starting and emissions
- D) High engine power

**Answer: C) Poor cold starting and emissions**

77. In carbureted engines, fuel is mixed with air:

- A) Near the intake valve
- B) In the combustion chamber
- C) Inside the exhaust manifold
- D) In the carburetor

**Answer: D) In the carburetor**

78. Advantage of MPFI over carburetor:

- A) Lower cost
- B) Easier manufacturing
- C) Better fuel atomization and control
- D) No ECU required

**Answer: C) Better fuel atomization and control**

79. In Throttle Body Injection (TBI), fuel is injected:

- A) Into each cylinder
- B) Into exhaust port
- C) Just above throttle valve
- D) Into fuel tank

**Answer: C) Just above throttle valve**

80. In Port Fuel Injection (PFI), fuel is injected:

- A) Before throttle
- B) Into combustion chamber
- C) Near intake valve of each cylinder
- D) After exhaust valve

**Answer: C) Near intake valve of each cylinder**

81. Which system offers more precise fuel delivery?

- A) TBI
- B) PFI
- C) Carburetor
- D) Mechanical injection

**Answer: B) PFI**

82. MPFI stands for:

- A) Multi-Point Fuel Injection
- B) Multi-Port Fuel Ignition
- C) Main Power Fuel Injector
- D) Multiple Pressure Fuel Injection

**Answer: A) Multi-Point Fuel Injection**

83. Which is NOT an MPFI sensor?

- A) TPS
- B) Oxygen sensor
- C) Knock sensor
- D) Brake pedal sensor

**Answer: D) Brake pedal sensor**

84. Function of Oxygen sensor:

- A) Detect temperature
- B) Detect throttle angle
- C) Monitor exhaust air-fuel ratio
- D) Increase fuel pressure

**Answer: C) Monitor exhaust air-fuel ratio**

85. MAF sensor measures:

- A) Engine speed
- B) Throttle position
- C) Amount of air entering engine
- D) Fuel temperature

**Answer: C) Amount of air entering engine**

86. Engine temperature sensor:

- A) O<sub>2</sub> sensor
- B) MAP sensor
- C) Coolant temperature sensor
- D) Camshaft sensor

**Answer: C) Coolant temperature sensor**

87. Actuator in MPFI:

- A) MAP sensor
- B) Fuel injector
- C) Oxygen sensor
- D) TPS

**Answer: B) Fuel injector**

88. ECU controls:

- A) Ignition only
- B) Air supply only
- C) Fuel injection timing & duration
- D) Exhaust valves

**Answer: C) Fuel injection timing & duration**

89. Engine speed sensor:

- A) TPS
- B) Crankshaft position sensor
- C) IAT sensor
- D) Coolant sensor

**Answer: B) Crankshaft position sensor**

90. Component improving fuel economy & emissions:

- A) Air filter
- B) Ignition coil
- C) ECU
- D) Flywheel

**Answer: C) ECU**

91. CRDI stands for:

- A) Controlled Rail Direct Ignition
- B) Common Rail Direct Injection
- C) Constant Rate Direct Injection
- D) Combined Rail Diesel Injection

**Answer: B) Common Rail Direct Injection**

92. Key feature of CRDI:

- A) Carburetor use
- B) Low pressure injection
- C) High-pressure common rail
- D) Spark ignition

**Answer: C) High-pressure common rail**

93. Fuel injection in CRDI:

- A) Intake manifold
- B) After exhaust valve
- C) Directly into combustion chamber
- D) Fuel tank

**Answer: C) Directly into combustion chamber**

94. NOT a CRDI component:

- A) Common rail
- B) High-pressure pump
- C) Spark plug
- D) ECU

**Answer: C) Spark plug**

95. CRDI injection timing is controlled by:

- A) Fuel filter
- B) Ignition coil
- C) ECU
- D) Glow plug

**Answer: C) ECU**

96. Function of common rail:

- A) Return line
- B) Fuel storage & distribution
- C) Pressure regulator
- D) Injector

**Answer: B) Fuel storage & distribution**

97. CRDI injectors are operated by:

- A) Camshaft
- B) ECU-controlled solenoids / piezo
- C) Vacuum
- D) Manual pump

**Answer: B) ECU-controlled solenoids / piezo**

98. CRDI block diagram excludes:

- A) Fuel tank
- B) High-pressure pump
- C) Common rail
- D) Catalytic converter

**Answer: D) Catalytic converter**

99. Advantage of CRDI:

- A) Lower engine weight
- B) Reduced compression ratio
- C) Precise fuel control & multiple injections
- D) Petrol usage

**Answer: C) Precise fuel control & multiple injections**

100. CRDI improves:

- A) Emissions
- B) Noise
- C) Fuel efficiency & lower emissions
- D) Low injection pressure

**Answer: C) Fuel efficiency & lower emissions**

101. Pilot injection is used to:

- A) Cool injector
- B) Reduce noise & improve combustion
- C) Increase fuel flow
- D) Heat exhaust

**Answer: B) Reduce noise & improve combustion**

102. Pump used in CRDI:

- A) Diaphragm
- B) Vane
- C) High-pressure plunger pump
- D) Water pump

**Answer: C) High-pressure plunger pump**

103. CRDI pressure range:

- A) 10–20 bar
- B) 100–200 bar
- C) 1000–2000 bar
- D) 5000–6000 bar

**Answer: C) 1000–2000 bar**

104. CRDI injection is:

- A) Constant
- B) Fixed volume
- C) Variable timing & pressure
- D) After exhaust

**Answer: C) Variable timing & pressure**

105. Advantage of CRDI engines:

- A) Higher NO<sub>x</sub>
- B) Low efficiency
- C) Smooth operation & reduced knock
- D) More mechanics

**Answer: C) Smooth operation & reduced knock**

106. Advantage of VGT:

- A) Smaller engine
- B) Low-speed only performance
- C) Optimal boost across RPM
- D) Higher fuel use

**Answer: C) Optimal boost across RPM**

107. VGT vanes regulate:

- A) Coolant flow
- B) Air-fuel ratio
- C) Exhaust gas flow
- D) Ignition timing

**Answer: C) Exhaust gas flow**

108. VGT benefit:

- A) Reduced torque
- B) Turbo lag
- C) Lower emissions & better response
- D) Simple design

**Answer: C) Lower emissions & better response**

109. VVT is used to:

- A) Control fuel pressure
- B) Increase engine size
- C) Optimize valve timing
- D) Reduce plug wear

**Answer: C) Optimize valve timing**

110. VVT does NOT improve:

- A) Power
- B) Emissions
- C) Valve damage
- D) Fuel efficiency

**Answer: C) Valve damage**

111. VVT adjusts:

- A) Injector pressure
- B) Valve timing
- C) Piston stroke
- D) Oil temperature

**Answer: B) Valve timing**

112. GDI injects fuel:

- A) Carburetor
- B) Intake manifold
- C) Combustion chamber
- D) Exhaust manifold

**Answer: C) Combustion chamber**

113. Advantage of GDI:

- A) Low pressure
- B) Rich mixture
- C) Better economy & performance
- D) High emissions

**Answer: C) Better economy & performance**

114. Stratified charge is used to:

- A) Cool engine
- B) Burn rich mix
- C) Lean burn at light load
- D) Reduce ignition temp

**Answer: C) Lean burn at light load**

115. Stratified charge means:

- A) Carburetor mixing
- B) Outside cylinder mixing
- C) Different mixture zones
- D) Diesel use

**Answer: C) Different mixture zones**

116. Essential component for stratified charge:

- A) Spark plug
- B) Direct injector
- C) Turbocharger
- D) EGR valve

**Answer: B) Direct injector**

117. Challenge of GDI:

- A) Cooling loss
- B) Engine size
- C) Particulate emissions
- D) Low compression

**Answer: C) Particulate emissions**

118. VVT integrated with:

- A) Fuel tank
- B) Cooling fan
- C) Variable Valve Lift
- D) Starter motor



**Answer: C) Variable Valve Lift**

119. Small VGT vane opening causes:

- A) Low boost
- B) Faster turbine & torque
- C) Low temperature
- D) Delay

**Answer: B) Faster turbine & torque**

120. GDI modes:

- A) Turbo / non-turbo
- B) Cold / hot
- C) Homogeneous / stratified
- D) Open / closed loop

**Answer: C) Homogeneous / stratified**

121. Emission control purpose:

- A) Increase fuel use
- B) Engine size
- C) Reduce harmful emissions
- D) Improve sound

**Answer: C) Reduce harmful emissions**

122. EGR stands for:

- A) Engine Gas Reduction
- B) Exhaust Gas Recirculation
- C) Electronic Gas Re-injection
- D) Emission Gas Regulator

**Answer: B) Exhaust Gas Recirculation**

123. EGR reduces:

- A) CO
- B) HC
- C) NO<sub>x</sub>
- D) PM

**Answer: C) NO<sub>x</sub>**

124. EGR valve works by:

- A) Fuel pressure rise
- B) Exhaust gas recirculation
- C) Sealing exhaust
- D) Coolant control

**Answer: B) Exhaust gas recirculation**

125. EGR reduces NO<sub>x</sub> by:

- A) Raising temp
- B) Lowering temp
- C) Increasing air
- D) Less fuel

**Answer: B) Lowering temperature**

126. EGR valve is controlled by:

- A) Carburetor
- B) Throttle
- C) ECU
- D) Distributor

**Answer: C) ECU**

127. PCV system:

- A) Adds fuel
- B) Raises oil pressure
- C) Recirculates blow-by gases
- D) Seals crankcase

**Answer: C) Recirculates blow-by gases**

128. Blow-by gases are:

- A) Tailpipe gases
- B) Tank gases
- C) Gases past piston rings
- D) Radiator gases

**Answer: C) Gases past piston rings**

129. PCV reduces:

- A) CO<sub>2</sub>
- B) HC
- C) NO<sub>x</sub>
- D) Lead

**Answer: B) HC**

130. PCV component:

- A) EGR cooler
- B) Catalytic converter
- C) PCV valve
- D) MAP sensor

**Answer: C) PCV valve**

131. EVAP system:

- A) Prevent oil leaks
- B) Trap fuel vapors
- C) Stop smoke
- D) Cool radiator

**Answer: B) Trap fuel vapors**

132. Charcoal canister:

- A) Absorbs coolant
- B) Stores oil
- C) Absorbs fuel vapors
- D) Filters air

**Answer: C) Absorbs fuel vapors**

133. Stored vapors are:

- A) Released
- B) Burned in exhaust
- C) Sent to intake
- D) Condensed

**Answer: C) Sent to intake**

134. Emission system active when parked:

- A) PCV
- B) EGR
- C) EVAP
- D) Catalytic converter

**Answer: C) EVAP**

135. Emission & economy control:

- A) PCV
- B) EGR
- C) EVAP
- D) EGR & PCV

**Answer: D) EGR & PCV**

136. EV propulsion:

- A) ICE
- B) Steam
- C) Electric motor + battery
- D) Gas turbine

**Answer: C) Electric motor + battery**

137. EV key component:

- A) Injector
- B) Motor
- C) Carburetor
- D) Exhaust

**Answer: B) Motor**

138. BEV energy stored in:

- A) Hydrogen tank
- B) Diesel tank
- C) Battery pack
- D) Flywheel

**Answer: C) Battery pack**

139. Charging infrastructure:

- A) Cooling
- B) Air supply
- C) Battery charging
- D) Lubrication

**Answer: C) Battery charging**

140. EV excludes:

- A) Battery
- B) Motor
- C) Gearbox
- D) Fuel tank & exhaust

**Answer: D) Fuel tank & exhaust**

141. Common EV battery:

- A) Lead-acid
- B) NiMH
- C) Lithium-ion
- D) Zinc-air

**Answer: C) Lithium-ion**

142. Li-ion advantage:

- A) Heavy
- B) Memory effect
- C) High energy density
- D) Water topping

**Answer: C) High energy density**

143. BMS function:

- A) Increase speed
- B) Regulate airflow
- C) Manage battery health
- D) Steering

**Answer: C) Manage battery health**

144. NOT BMS function:

- A) Temp monitoring
- B) SOC control
- C) Fuel injection
- D) Safety

**Answer: C) Fuel injection**

145. Common EV motor:

- A) Brushed DC
- B) Reluctance
- C) BLDC
- D) Shaded pole

**Answer: C) BLDC**

146. Regenerative braking:

- A) Oil brakes
- B) Converts energy to electrical
- C) Hydraulic braking
- D) Reverse gear

**Answer: B) Converts energy to electrical**

147. Battery energy depends on:

- A) Voltage
- B) Capacity
- C) Current
- D) Temperature

**Answer: B) Capacity**

148. Fastest EV charging:

- A) Level 1
- B) Level 2
- C) DC fast charging
- D) USB

**Answer: C) DC fast charging**

149. Inverter function:

- A) Charging
- B) AC to DC
- C) DC to AC
- D) Cooling

**Answer: C) DC to AC**

150. Electric motor function:

- A) Store energy
- B) Create fuel
- C) Convert electrical to mechanical energy
- D) Control temperature

**Answer: C) Convert electrical to mechanical energy**