Name:_____ Date:_____
Instructor:_____ Period:_____

1

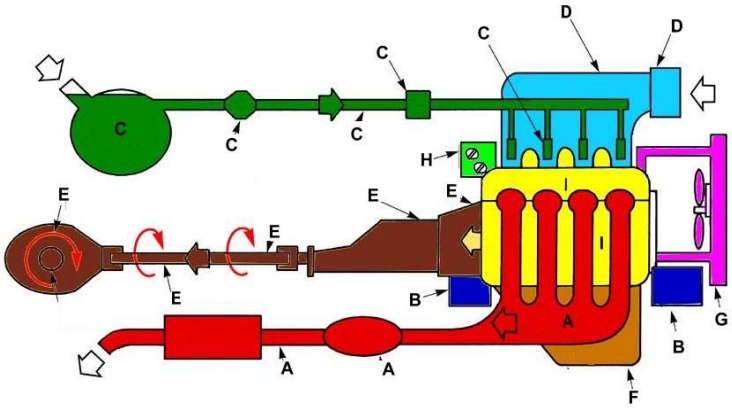
The Automobile

Objective: After completing this workbook assignment, you'll be able to identify and explain the most important parts of a vehicle.

Parts, Assemblies, and Systems

1. A(n)_____is a set of fitted parts designed to complete a function.

_____



2. Identify the following automotive systems and parts:
(Larger Picture in textbook)

A._____
B._____
C._____
D._____
E._____
F._____
G._____
H._____
I._____

3. **List** and **Describe** three of the most common automotive body types:

A._____
_____
_____

B._____
_____
_____

C._____
_____
_____

Engine

Match the terms on the right with the following statements:

4. Covers and seals the top of the cylinder.	A. Camshaft B. Cylinder Head	**4.**
5. Open and close to control the flow of the air-fuel mixture and the exhaust gases.	C. Piston D. Combustion Chamber	**5.**
6. Changes the reciprocating motion of the piston and rod into useful rotary motion.	E. Crankshaft F. Valves	**6.**
7. Keep(s) the valves closed when they do not need to be open.	G. Block H. Rings	**7.**
8. Ride(s) on the cam lobe and transfers motion to other parts of the valve train.	I. Valve Springs J. Lifters	**8.**
9. Controls opening of the valves.		**9.**
10. Hollow area between the top of the piston and the bottom of the cylinder head.		**10.**
11. Links the piston to the crankshaft.		**11.**
12. Metal casting that holds engine parts in place.		**12.**
13. Keeps combustion pressure and oil from leaking between the piston and cylinder wall.		**13.**
14. Transfers the energy of combustion to the connecting rod.		**14.**

Computer System

15. The automobiles' computer system uses _____and_____devices to monitor and control various systems in the vehicle, including_,_____,_____, _____, _____ _____ systems.

16. Name the three primary parts and functions of an automotive computer system are _____, _____ _____, _____.

17. The functions of an automotive fuel system are to provide the correct mixture of _____ and _____ for efficient combustion.

18. This system must add the right amount of _____ to the _ entering the cylinders.

19. Modern fuel injection systems use a _____ _____, sensors, and electrically operated fuel injectors to meter fuel into the engine.

20. A modern throttle valve controls airflow, _____ _____, and engine power.

21. A carburetor fuel system uses engine _____ to draw fuel into the engine.

Electrical Systems

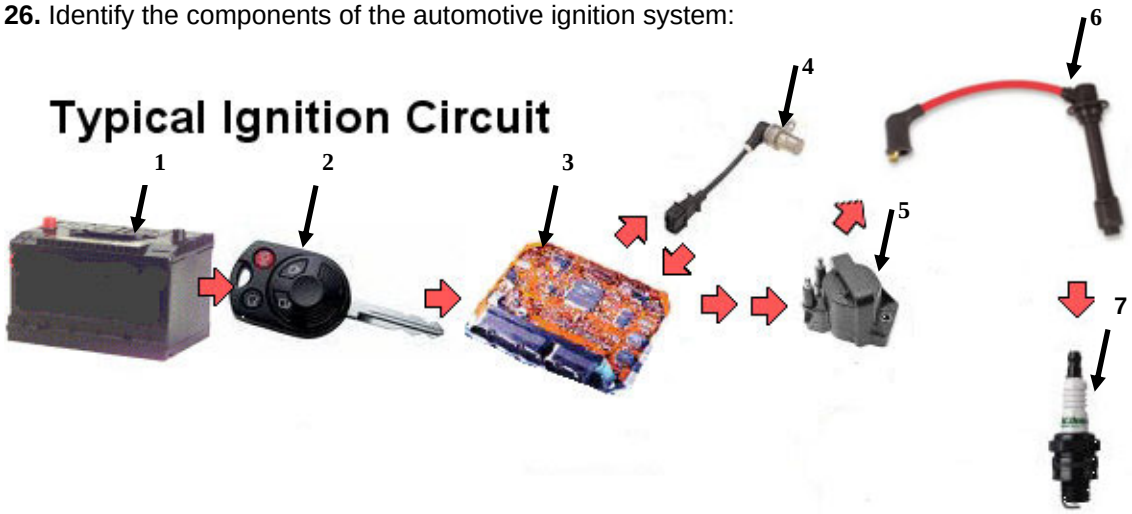
22. The purpose of the ignition coil is to produce a very high voltage to _____ the spark plug.

23. The ignition system's control module uses crankshaft sensor signals to _____ the ignition coil.

24. The starting system has a powerful _____ motor that rotates the engine crankshaft until the engine fires and runs on its own power.

25. A battery provides the _____ for the starting system.

26. Identify the components of the automotive ignition system:



1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____

Spark Plug
Spark Plug Wire
Powertrain Control Module
Unit Coil
Ignition Key
Crank-Trigger Ignition Sensor
Battery

Cooling and Lubrication Systems

27. The purpose of an automotive cooling system is to speed engine _____, and maintain a consistent engine _____ .

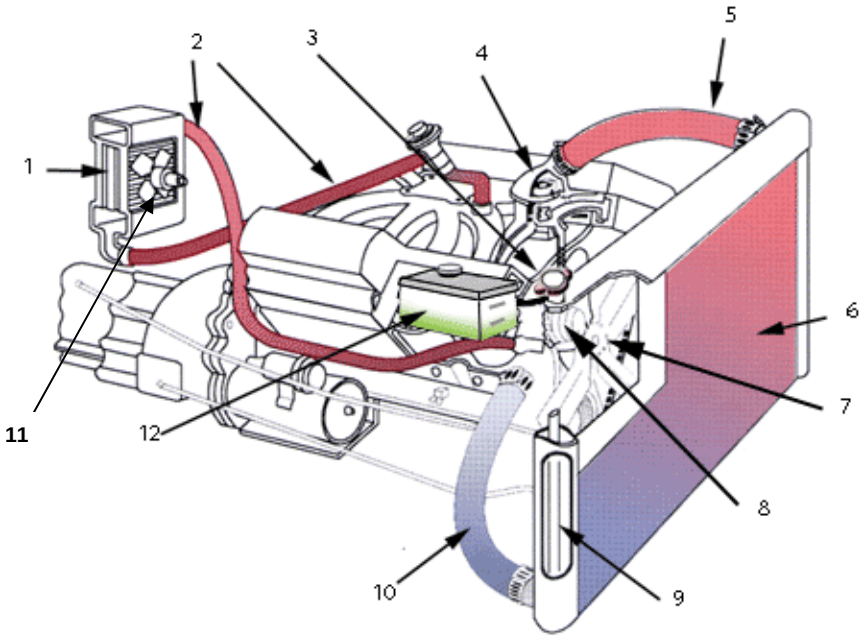
28. The water pump forces _____ through the inside of the engine, hoses, and radiator.

29. A fan draws cool air through the _____ .

30. The cooling system thermostat on top of the _____ and controls _____ flow and engine _____.

31. The functions of an automotive lubrication system is to circulate filtered _____ to high friction points in the engine. The lubrication system also helps cool the engine by carrying _____ away from the engine.

32. Identify the parts of the automotive cooling system shown below:



1._____
2._____
3._____
4._____
5._____
6._____
7._____
8._____
9._____
10._____
12._____

Radiator
Water Pump
Thermostat
Lower Radiator Hose (Suction)
Heater Core
Heater Hoses
Coolant Recovery Tank
Transmission Cooler
Upper Radiator Hose (Pressure)
Fan
Pressure Cap
Heater Fan

33. The _____ _____ pulls oil out of the pan forces it throughout the engine to lubricate and cool various moving parts within the engine.

Exhaust and Emission Control Systems

34. Describe the purpose of an automotive exhaust system:_____

_____

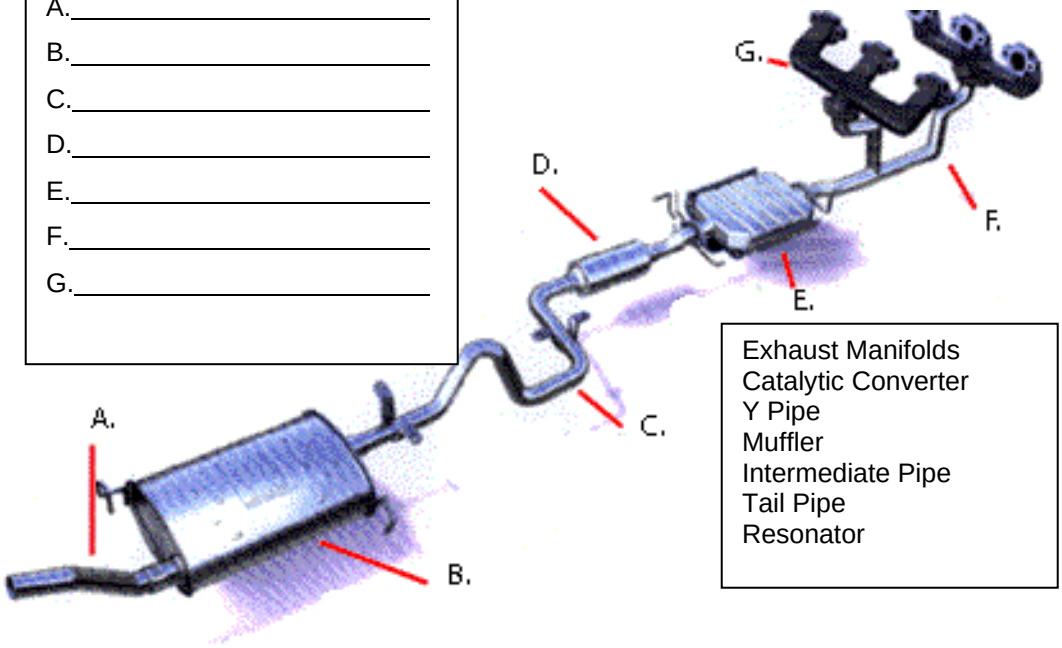
_____

_____

35. Emission control systems are designed to reduce the levels _____ produced by an engine.

36. Identify and label the components of the automotive exhaust system.

A._____
B._____
C._____
D._____
E._____
F._____
G._____



Exhaust Manifolds
Catalytic Converter
Y Pipe
Muffler
Intermediate Pipe
Tail Pipe
Resonator

Drive Train Systems

Match the Terms on the left with the Statements on the right.

37. A transmission and differential in one assembly.
38. A set of gears and shafts that transmit power from the drive shafts to the axles.
39. Contains a differential and two axles.
40. Transfers power from the transmission to the rear axle assembly.
41. Uses an internal hydraulic system electronic controls to shift gears.
42. Lets the driver change gear ratios to accommodate driving conditions.
43. Uses various gear combinations, or ratios, multiply engine speed and torque to accommodate driving conditions.
44. Allows the driver to engage or disengage the engine and the manual transmission.
45. Transfers turning force from the engine crankshaft to the drive wheels.

37._____
38._____
39._____
40._____
41._____
42._____
43._____
44._____
45._____

A. Rear Drive Axle
B. Clutch
C. Drive Train
D. Transmission
E. Drive Shaft
F. Differential
G. Axles
H. Torque Converter
I. Transaxle
J. Automatic Transmission
K. Manual Transmission

Suspension, Steering, and Brake Systems

46. The suspension, steering, and brake systems are the _____ parts of the chassis.

47. List three primary functions of an automobile suspension system:

A._____

B._____

C._____

48. The steering system allows the driver to control the direction of the vehicle by turning the _____ from left to right.

49. _____ is created by the braking system by forcing the brake shoes and pads against the brake drums and rotors.

50. Label the parts of the illustrated brake system:

A._____

B._____

C._____

D._____

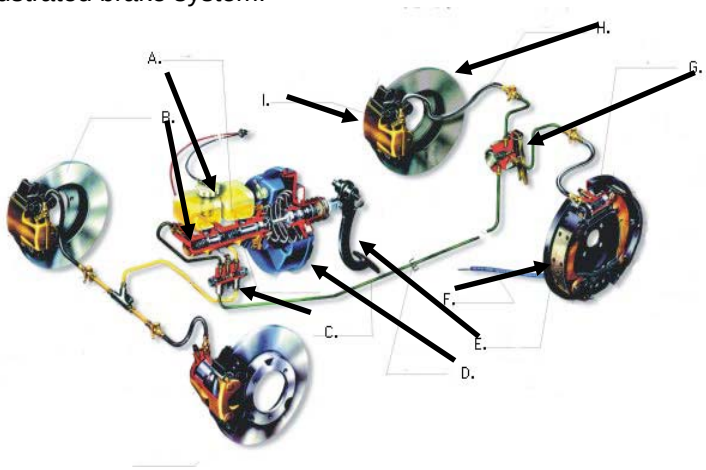
E._____

F._____

G._____

H._____

I._____



Safety and Accessory Systems

51. List four (4) examples of current automotive accessory systems:

A._____

B._____

C._____

D._____

52. List three (3) examples of current automotive safety systems:

A._____

B._____

C._____