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SKU: 9781645641711-TEST-BANK

1. Until around the 1960s, which of the following was still true?

a. Fuel economy was unimportant to most drivers.

b. Almost no one was concerned about exhaust emissions.

c. Solid-state electronic components did not exist "under the hood."

*d. All of the above.

2. In which decade were the first emission controls introduced?

a. The 1950s.

*b. The 1960s.

c. The 1970s.

d. The 1980s.

3. Crude oil supplies are ____.

*a. constantly being depleted by use

b. renewable resources

c. mostly found in the United States

d. never going to run out

4. The majority of driving in the U.S. is done under which conditions?

*a. At low speeds in urban areas.

b. At highway speeds on the Interstate system.

c. As a combination of off- and on-road driving.

d. At medium speeds on rural highways.

5. Modern horsepower readings are taken at the ____.

a. engine flywheel

b. engine damper

c. transmission/transaxle output shaft

*d. driving wheels

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6. Technician A says that a tune-up will probably cure most driveability problems. Technician B says that, even if no driveability problem is evident, a tune-up should be performed at every second oil change. Who is right?

a. A only.

b. B only.

c. Both A and B.

*d. Neither A nor B.

7. Current final drive gear ratios are a compromise between fuel economy and ____.

*a. low-speed power and acceleration

b. high-speed power and acceleration

c. top speed

d. smoothness during transmission/transaxle shifts

8. Technician A says that engine power must be used to overcome wind resistance at all speeds. Technician B says that air dams increase flow through the vehicle radiator. Who is correct?

a. A only.

b. B only.

*c. Both A and B.

d. Neither A nor B.

9. Technician A says that on a mild hybrid, the gasoline engine is shut off when the vehicle comes to a stop. Technician B says that regenerative braking can be used in any type of vehicle. Who is correct?

*a. A only.

b. B only.

c. Both A and B.

d. Neither A nor B.

10. On a fuel cell vehicle, ____.

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a. oxygen and hydrogen are burned

b. oxygen and hydrogen are stored in a tank

*c. electricity propels the vehicle

d. Either A or C.

11. The energy produced by regenerative braking is used to ____.

a. help slow the vehicle

b. charge the vehicle battery

c. move the vehicle

*d. Both A and B.

12. Technician A says that use of computer controls has increased the number of components needing periodic replacement. Technician B says that use of computer controls has made driveability diagnosis more complex. Who is correct?

a. A only.

*b. B only.

c. Both A and B.

d. Neither A nor B.

13. A motor/generator consists of:

a. An electric motor and an internal combustion engine.

b. An internal combustion engine and a generator.

*c. An electric motor and a generator.

d. A or B, depending on the manufacturer.

14. Technician A says that unitized bodies develop fewer rattles than bodies bolted to a separate frame. Technician B says that unitized bodies transmit more rattles from other places in the vehicle than non-unitized bodies. Who is correct?

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a. A only.

b. B only.

*c. Both A and B.

d. Neither A nor B.

15. Supplies of crude oil are practically inexhaustible; the problem is getting them to refineries.

a. True
*b. False

16. Some vehicle parts are made from recycled plastics, such as soft drink bottles.

*a. True
b. False

17. Some engine mounts are filled with fluid.

*a. True
b. False

18. A fuel cell vehicle uses a small internal combustion engine with a supercharger.

a. True
*b. False

19. A hybrid vehicle produces no emissions when it is stopped in traffic.

*a. True
b. False

20. Transmission shift valves are moved by hydraulic pressure, as opposed to how they were moved in older designs.

a. True
*b. False

21. Vacuum-operated EGR valves have been replaced with exhaust-operated valves.

a. True
*b. False

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22. Manufacturing tolerances have decreased greatly over the past few decades.

*a. True
b. False

23. Fuel cell technology involves a chemical reaction.

*a. True
b. False

24. The stated vehicle power is measured at the engine flywheel.

a. True
*b. False

25. The final drive ratio is around 4.11 to 1.

a. True
*b. False

26. Aerodynamic body shapes reduce top speed.

a. True
*b. False

27. Hybrid vehicles do not have a separate alternator.

*a. True
b. False

28. Under heavy acceleration, a hybrid vehicle may be driven by the internal combustion engine and the motor/generator.

*a. True
b. False

29. Match the vehicle part or system with its description.

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[i] 1. Stamped in one piece or welded together.

[b] 2. Turned by exhaust gases.

[c] 3. Reduces torque converter slippage.

[f] 4. Produces electricity by chemical reaction.

[d] 5. Used on vehicles with manual transmissions/transaxles.

[e] 6. First used on diesel engines.

[h] 7. Can move the vehicle if the engine fails.

[a] 8. A method of reducing drivetrain weight.

a. Front-wheel drive

b. Turbocharger

c. Lockup clutch

d. Shift light

e. Fuel injection

f. Fuel cell

g. Oxygen sensor

h. Integrated motor assist

i. Unibody

30. Match the particular engine or vehicle characteristic with the decade during which it was widely used. Some answers may be used more than once.

[g] 1. Average weight of 4000 pounds (1814 kg).

[f] 2. Average weight of 3000 pounds (1360 kg).

[e] 3. 350 cu. in. (5.7 L).

[b] 4. 230 cu. in. (3.8 L).

[a] 5. Fuel injection.

[c] 6. Overdrive transmission.

[d] 7. Front-wheel drive.

a. 1990s engine

b. 1990s engine

c. 1990s vehicle

d. 1990s vehicle

e. 1960s engine

f. 1990s vehicle

g. 1960s vehicle

31. Automatic transmissions/transaxles have housings made of ____.

Correct Answer(s):
a. aluminum

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32. A manual transmission/transaxle may have as many as ____ speeds.

Correct Answer(s):
a. six

b. 6

33. The ____ an engine turns at highway speeds, the less fuel it uses.

Correct Answer(s):
a. slower

34. Almost all older vehicles had ____-wheel drive.

Correct Answer(s):
a. rear

35. When fuel is broken into small particles, it is said to be ____.

Correct Answer(s):
a. atomized

36. Turbochargers and superchargers force more ____ into the engine.

Correct Answer(s):
a. air

37. In a hybrid vehicle, the integrated motor assist is installed between the engine and ____.

Correct Answer(s):
a. transmission/transaxle

b. transmission or transaxle

c. transmission and transaxle

38. Good driveability means engine and vehicle operation without any obvious ____.

Correct Answer(s):
a. defects

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39. A typical overdrive ratio is around ____ to 1.

Correct Answer(s):
a. 0.7

b. .7

40. It is uncommon for today's technician to go through even one day without referring to ____ information.

Correct Answer(s):
a. service

41. Today, engine power is measured at the ____.

Correct Answer(s):
a. drive wheels

42. A fuel cell vehicle must be refilled with ____.

Correct Answer(s):
a. hydrogen

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