Electricity PAT Questions

Answer: B 75.6 Correct

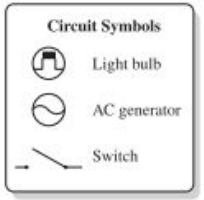
31. When clothes are removed from a clothes dryer, sparks can be seen as the clothes are separated. These sparks are a result of

A. current electricity
B. an electrical discharge
C. a buildup of neutral atoms
D. anti-static sheets absorbing neutral charges

Answer: C
70.4 Correct

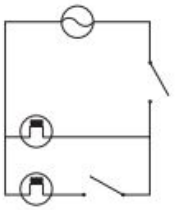
Use the following information to answer question 34.

A garage is equipped with two lights and a generator, which are wired in parallel. Each light can be controlled separately, and there is a switch that can turn off both lights at once.

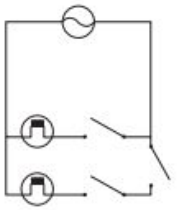


34. Which of the following diagrams represents the circuit described above?

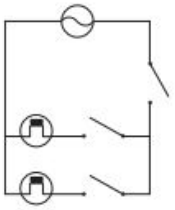
A.



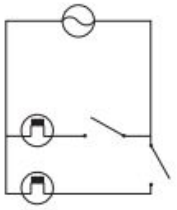
B.



C.



D.

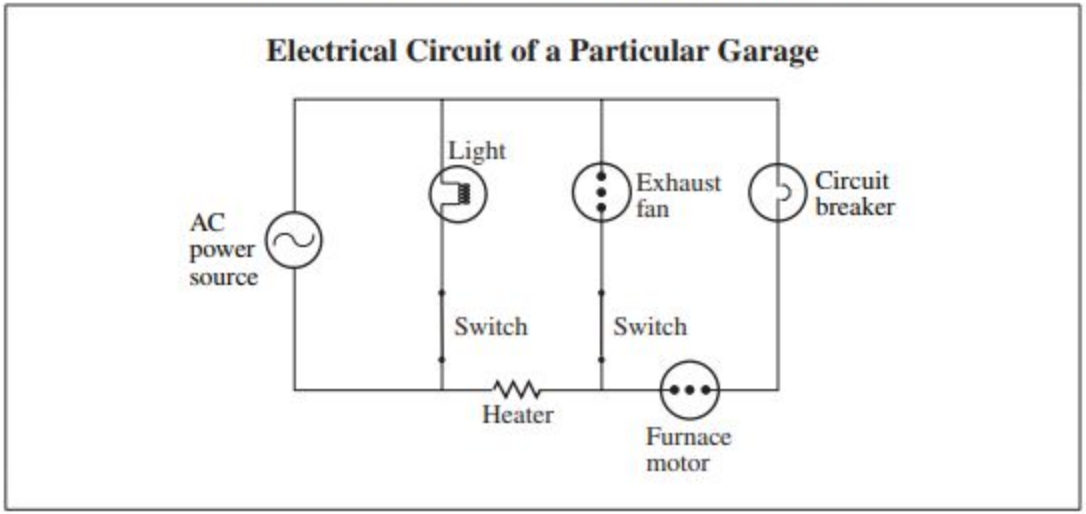


Answer: C 35.7% Correct

39. Tungsten is used as a filament in some light bulbs because it

A. allows electrons to flow easily
B. allows protons to flow easily
C. resists the flow of electrons
D. resists the flow of protons

Use the following diagram to answer question 40.



40. Which component in the circuit shown above is protected by the circuit breaker when both switches are closed?

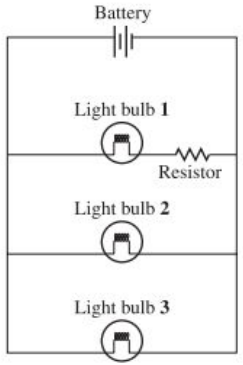
A. Furnace motor
B. Exhaust fan
C. Heater
D. Light

Answer: A
73.1% Correct

Answer: C 66.1% Correct

Use the following diagram to answer question 37.

Circuit with Three Identical Light Bulbs



37. Which of the following statements predicts the relative brightness of each of the three light bulbs in the circuit shown above?

A. Light bulb 1 is dimmer than light bulb 2, which is dimmer than light bulb 3.

B. Light bulb 1 is brighter than light bulb 2, which is brighter than light bulb 3.

C. Light bulb 1 is dimmer than light bulbs 2 and 3, which both have the same brightness.

D. Light bulb 1 is brighter than light bulbs 2 and 3, which both have the same brightness.

Answer: D 69.1% Correct

Joe watches television for 6.00 hours (21 600 seconds). The input power rating of his television is 200 W. The electrical energy consumed by any electrical device can be calculated using the following formula.

$$E = P \cdot t$$

E = Energy (in joules)
P = Power (in watts)
t = Time (in seconds)

32. The total electrical energy consumed by Joe's television is

A. 33.3 J
B. 108 J
C. 1.20 kJ
D. 4.32 MJ

Answer: A 61.4% Correct

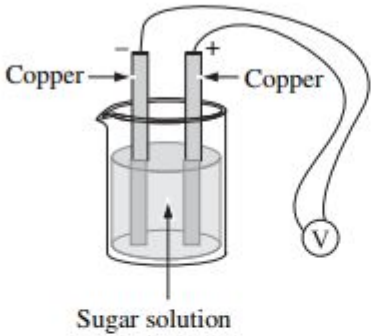
33. Which of the following modifications to an electromagnet will increase its strength?

A. Using a larger iron core
B. Using fewer coils of copper wire
C. Increasing the resistance of the iron core
D. Decreasing the current passing through the coils of copper wire

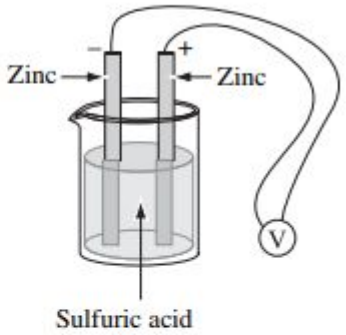
Answer: D
82.9%
Correct

36. Which of the following wet cells would produce the **highest** voltage?

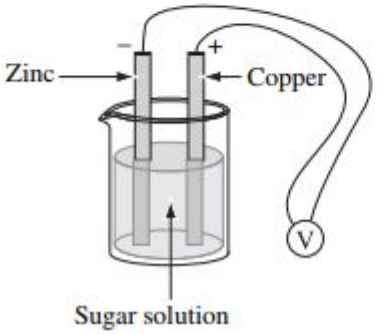
A.



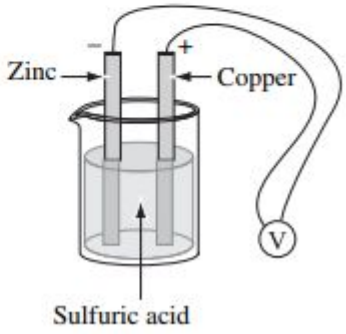
B.



C.



D.



Answer: B 72.4% Correct

Regional Electrical Energy Generation (GW·h) by Resource, 1999–2002

Year	Coal	Natural Gas	Hydro	Wind	Biomass and Waste	Total
1999	40 276.7	12 126.2	1 453.3	183.1	255.2	54 294.5
2000	40 459.2	15 219.9	1 756.3	71.9	273.8	57 781.1
2001	41 713.3	18 792.9	1 675.4	323.2	282.3	62 787.1
2002	42 541.8	19 462.1	2 188.2	64.6	335.5	64 592.2

35. Which of the following statements is supported by the data in the table above?

A. The combined production of energy from renewable and non-renewable resources decreases yearly.

B. The combined production of energy from renewable and non-renewable resources increases yearly.

C. As the generation of electrical energy from non-renewable resources increases, the generation of electrical energy from renewable resources decreases.

D. As the generation of electrical energy from renewable resources increases, the generation of electrical energy from non-renewable resources decreases.

Answer: 12.5 47.7% Correct

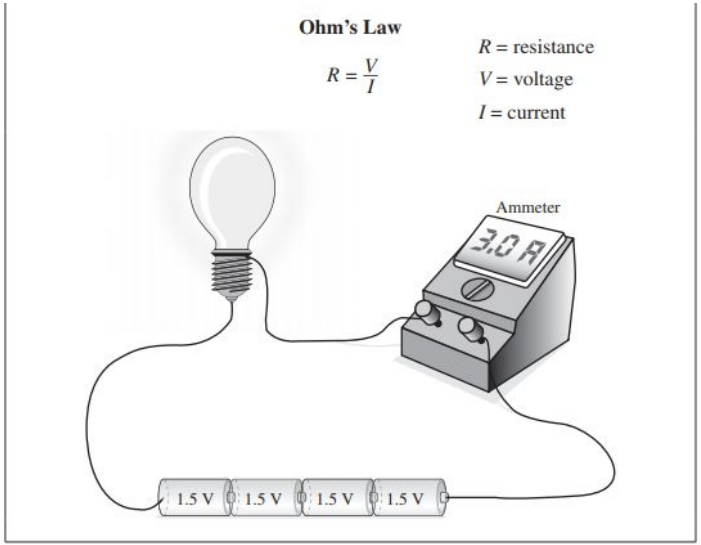
In order to produce 100 000 J of heat energy, a hot plate consumes 800 000 J of electrical energy.

Numerical Response

4. To the nearest tenth of a percentage, the efficiency of the hot plate is _____ %.

(Record your answer in the numerical-response section on the answer sheet.)

Answer: A 80.2% Correct



38. The resistance in the circuit shown above is

A. 2 Ω
B. 3 Ω
C. 4 Ω
D. 6 Ω