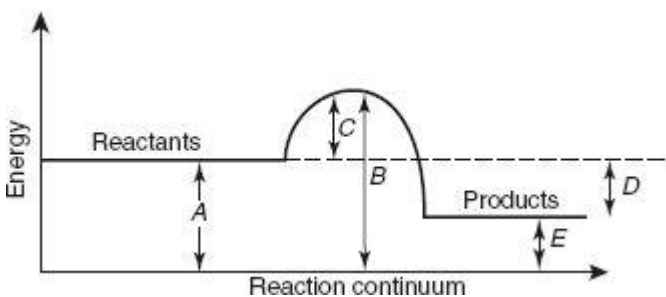


SAT Chemistry Practice- Paper 40



In this graphic representation of a chemical reaction, which arrow depicts the activation energy of the forward reaction?

- A. A
- B. B
- C. C
- D. D
- E. E

2. How many liters (STP) of  $O_2$  can be produced by completely decomposing 2.00 moles of  $KClO_3$ ?

- A. 11.2
- B. 22.4
- C. 33.6
- D. 44.8
- E. 67.2

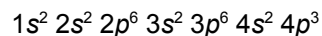
3. Which of the following statements is true?

- A. A catalyst cannot lower the activation energy.
- B. A catalyst can lower the activation energy.
- C. A catalyst affects only the activation energy of the forward reaction.
- D. A catalyst affects only the activation energy of the reverse reaction.
- E. A catalyst is permanently changed after the activation energy is reached.

4. Which of the following is the correct structural representation of sodium?

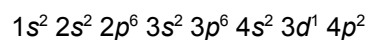
11 p

A. 11 n Nucleus and electron configuration:



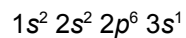
11 p

B. 12 n Nucleus and electron configuration:



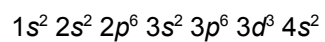
23 p

C. 23 n Nucleus and electron configuration:



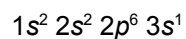
23 p

D. 23 n Nucleus and electron configuration:



11 p

E. 12 n Nucleus and electron configuration:



5. If the molecular mass of  $\text{NH}_3$  is 17, what is the density of this compound at STP?

- A. 0.25 g/L
- B. 0.76 g/L
- C. 1.52 g/L
- D. 3.04 g/L
- E. 9.11 g/L

6. Which bond(s) is (are) ionic?

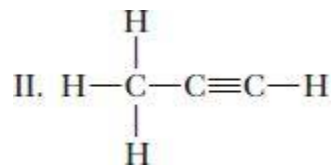
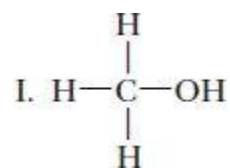
I. H-Cl(g)

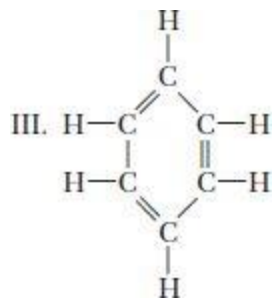
II. S-Cl(g)

III. Cs-F(s)

- A. I only
- B. III only
- C. I and II only
- D. II and III only
- E. I, II, and III

7. Aromatic hydrocarbons are represented by which of the following?





- A. I only
- B. III only
- C. I and II only
- D. II and III only
- E. I, II, and III

8. According to placement in the Periodic Table, which statement(s) regarding the first ionization energies of certain elements should be true?

- I. Li has a higher value than Na.
- II. K has a higher value than Cs.
- III. Na has a higher value than Al.

- A. I only
- B. III only
- C. I and II only
- D. II and III only
- E. I, II, and III

9. Correctly expressed half-reactions include which of the following?

- I.  $\text{CrO}_4^{2-} + 8\text{H}^+ + 6\text{e}^- \rightarrow \text{Cr}^{3+} + 4\text{H}_2\text{O}$
- II.  $\text{I}^- + 6\text{OH}^- \rightarrow \text{IO}_3^- + 3\text{H}_2\text{O} + 6\text{e}^-$
- III.  $\text{MnO}_4^- + 2\text{H}_2\text{O} + 3\text{e}^- \rightarrow \text{MnO}_2 + 4\text{OH}^-$

- A. I only
- B. III only
- C. I and II only
- D. II and III only
- E. I, II, and III

10. What is the apparent oxidation state (number) of the underlined element in the compound



- A. +1
- B. +2
- C. +3

- D. +4
- E. +5

11. What is the apparent oxidation state (number) of the underlined element in the compound

$\text{MgSO}_4$ ?

- A. +1
- B. -1
- C. +2
- D. -2
- E. +3

12. What is the apparent oxidation state (number) of the underlined element in the compound

$\text{CO}_2$ ?

- A. +2
- B. -2
- C. +4
- D. -4
- E. +5

13. An atom with an electron configuration of  $1s^2 2s^2 2p^6 3s^2 3p^4$  will probably exhibit which oxidation state?

- A. +2
- B. -2
- C. +3
- D. -3
- E. +5

14. In the Lewis dot structure  $\text{X:}$ , what is the predictable oxidation number?

- A. +1
- B. -1
- C. +2
- D. -2
- E. +3

15. Commonly used in the laboratory to transfer an exact volume of liquid from one container to another

- A. Balance
- B. Barometer
- C. Condenser
- D. Funnel
- E. Pipette

16. Commonly used in the laboratory in a distillation setup

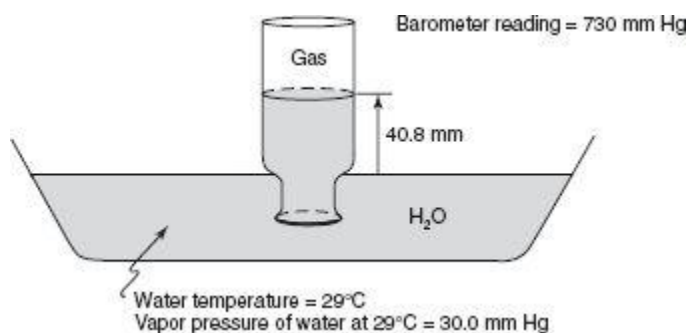
- A. Balance
- B. Barometer
- C. Condenser

- D. Funnel
- E. Pipette

17. Commonly used in the laboratory in a filtration setup

- A. Balance
- B. Barometer
- C. Condenser
- D. Funnel
- E. Pipette

18. If you collected hydrogen gas by the displacement of water and under the conditions shown:



which of the following would give you the pressure of the hydrogen in the bottle?

- A. 730. mm - 40.8 mm
- B. 730. mm - 30.0 mm
- C. 730. mm - 30.0 mm/13.6 + 40.8 mm
- D. 730. mm - 30.0 mm/13.6 - 40.8 mm
- E. 730. mm - 40.8 mm/13.6 - 30.0 mm

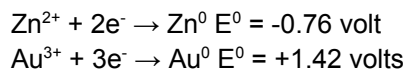
19. What occurs when a reaction is at equilibrium and more reactant is added to the container?

- A. The equilibrium remains unchanged.
- B. The forward reaction rate increases.
- C. The reverse reaction rate increases.
- D. The forward reaction rate decreases.
- E. The reverse reaction rate decreases.

20. How much heat energy is released when 8 grams of hydrogen are burned? The thermal equation is  $2\text{H}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{H}_2\text{O}(\text{g}) + 483.6 \text{ kJ}$ .

- A. 241.8 kJ
- B. 483.6 kJ
- C. 967.2 kJ
- D. 1,934 kJ
- E. 3,869 kJ

21. Would a spontaneous reaction occur between zinc *ions* and gold *atoms*?



- A. yes-Reaction potential 2.18 V
- B. no-Reaction potential -2.18 V
- C. yes-Reaction potential 0.66 V
- D. no-Reaction potential -0.66 V
- E. yes-Reaction potential 0.56 V

**22.** Four moles of electrons ( $4 \times 6.02 \times 10^{23}$  electrons) would electroplate how many grams of silver from a silver nitrate solution?

- A. 108
- B. 216
- C. 324
- D. 432
- E. 540

**23.** A 5.0 M solution of HCl has how many moles of H<sup>+</sup> ion in 1 liter?

- A. 0.50
- B. 1.0
- C. 2.0
- D. 2.5
- E. 5.0

Question	Correct Answer
1	C
2	E
3	B
4	E
5	B
6	B
7	B
8	C
9	D
10	A

11	C
12	C
13	B
14	C
15	E
16	C
17	D
18	E
19	B
20	C
21	B
22	D
23	E