

11. Which of the following can be used to prepare a buffer solution ?

- (I) From a mixture of sodium acetate and acetic acid in water.
- (II) From a mixture of sodium acetate and hydrochloric acid in water.
- (III) From a mixture of ammonia and ammonium chloride in water.

- (A) (I) and (II) only (B) (II) and (III) only
(C) (I) and (III) only (D) (I), (II) and (III)

12. For the reaction. $2Cl^{-}(g) \rightarrow Cl_2(g) + 2e^{-}$. What are the signs of ΔH and ΔS ?

- (A) ΔH - Negative; ΔS - Positive
(B) ΔH - Negative; ΔS - Negative
(C) ΔH - Positive; ΔS - Negative
(D) ΔH - Positive; ΔS - Positive

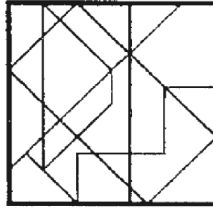
13. What is the purpose of exhaust system in limekilns where the decomposition of limestone takes place ?

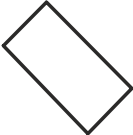

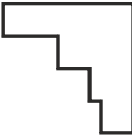
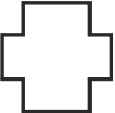
- (A) To drive away, CO_2 gas and make the reaction proceed for completion.
(B) To reduce the temperature of the reaction.
(C) To make the reaction attain equilibrium in less time.
(D) All of the above

14. Why can H_2S in presence of dilute HCl precipitate out only second group radicals but not fourth group radicals ?
- (A) HCl activates H_2S .
- (B) HCl decreases concentration of sulphide ions.
- (C) HCl increases concentration of sulphide ions.
- (D) Sulphides of IV group are unstable in HCl.
15. Which of the following electronic configurations represents the violation of both Aufbau principle and Hund's rule ?

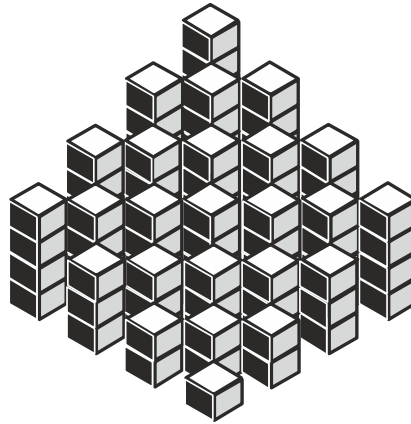
- (A) $\begin{array}{c} \boxed{1\downarrow} \\ 3s \end{array}$ $\begin{array}{c} \boxed{1\downarrow} \boxed{1\downarrow} \boxed{1\downarrow} \\ 3p \end{array}$ $\begin{array}{c} \boxed{1} \boxed{1} \boxed{1} \boxed{} \boxed{} \\ 3d \end{array}$ $\begin{array}{c} \boxed{1\downarrow} \\ 4s \end{array}$
- (B) $\begin{array}{c} \boxed{1\downarrow} \\ 3s \end{array}$ $\begin{array}{c} \boxed{1\downarrow} \boxed{1\downarrow} \boxed{1\downarrow} \\ 3p \end{array}$ $\begin{array}{c} \boxed{1} \boxed{1} \boxed{1} \boxed{1} \boxed{1} \\ 3d \end{array}$
- (C) $\begin{array}{c} \boxed{1\downarrow} \\ 3s \end{array}$ $\begin{array}{c} \boxed{1\downarrow} \boxed{1\downarrow} \boxed{1\downarrow} \\ 3p \end{array}$ $\begin{array}{c} \boxed{1\downarrow} \boxed{1} \boxed{1} \boxed{} \boxed{} \\ 3d \end{array}$
- (D) $\begin{array}{c} \boxed{1\downarrow} \\ 3s \end{array}$ $\begin{array}{c} \boxed{1\downarrow} \boxed{1\downarrow} \boxed{1\downarrow} \\ 3p \end{array}$ $\begin{array}{c} \boxed{1} \boxed{1} \boxed{1} \boxed{1} \boxed{} \\ 3d \end{array}$ $\begin{array}{c} \boxed{1} \\ 4s \end{array}$

16. The hidden figure in block 10 is _____.



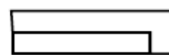
- (A)  (B)  (C)  (D) 

17. Count the number of blocks in the given figure.



- (A) 105 (B) 98 (C) 102 (D) 100

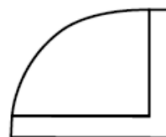
18. Identify the 3-dimensional object from the given three views.



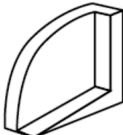
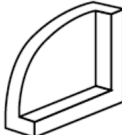

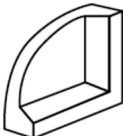
Top



Front



Side

- (A)  (B)  (C)  (D) 

19. Arrange the following words in a logical sequence.

(1) Never (2) Sometimes

(3) Generally (4) Seldom

(5) Always

(A) 3, 5, 1, 4, 2 (B) 3, 5, 4, 2, 1

(C) 5, 3, 1, 2, 4 (D) 5, 3, 4, 1, 2

20. Pick the TWO answer choices that will come together to make the figure shown. Pieces may be reflected and/or rotated.

