

## CHEMISTRY

### BOOKS - NTA MOCK TESTS

#### JEE MOCK TEST 24

#### Chemistry

1.  $A + B \rightleftharpoons C + D$ . If finally the concentrations of A and B are both equal but at equilibrium concentration of D will be twice of that of A then what will be the equilibrium constant of reaction.

A.  $\frac{9}{4}$

B.  $\frac{9}{4}$

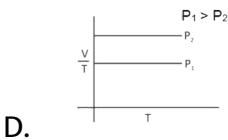
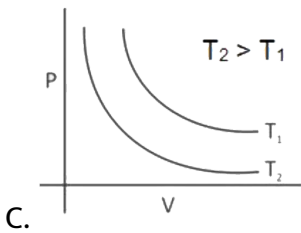
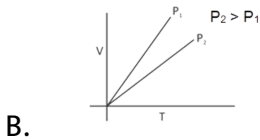
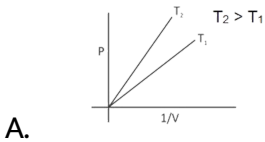
C.  $\frac{1}{4}$

D. 4

Answer: C

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2. Which of the following graphs is inconsistent with ideal gas behaviour ? (Assume  $n = \text{constant}$ )



Answer: C



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3. The ratio of minimum to maximum wavelength in Balmer series is

A. 5 : 9

B. 5 : 36

C. 1 : 4

D. 3 : 4

Answer: A



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4. A substance  $X$  is a compound of an element of group 1A the substance  $X$  gives a violet colour in flame test,  $X$  is

A. NaCl

B. CsCl

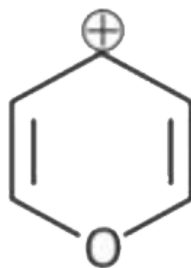
C. KCl

D. none of these

**Answer: B**

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5. Compare the stability of following carbocations .



A.  $III > II > I$

B.  $II > III > I$

C.  $III > I > II$

D.  $II > I > III$

**Answer: C**

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6. How many structural isomeric alkene possible for molecule formula  $C_5H_{10}$  which can show geometrical isomerism ?

A. 1

B. 2

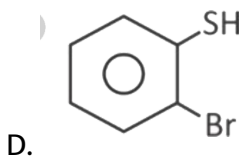
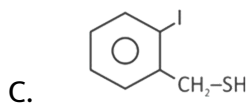
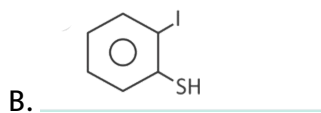
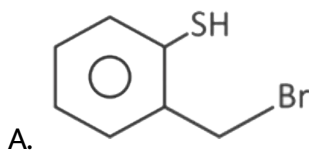
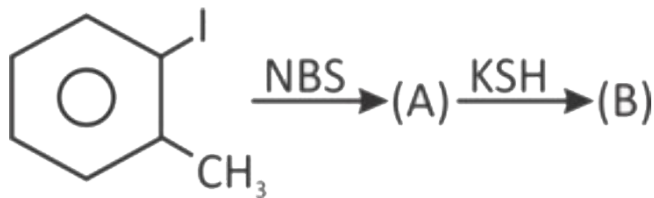
C. 0

D. 3

**Answer: A**

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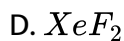
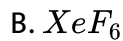
7. Choose the correct product for the following reaction :



Answer: C

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8. The molecule which contains maximum number of lone Pair is

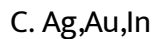
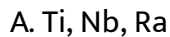


**Answer: D**



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9. The set containing only transition metals is



**Answer: B**

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**10.** The atomic numbers of elements A,B,C and D are  $Z - 1$ ,  $Z$ ,  $Z + 1$  and  $Z + 2$  respectively. If B is a noble gas, choose the correct statement among the following statements :

I. A has higher electron affinity.

II. C exists in +2 oxidation state.

III. D is an alkaline earth metal.

A. (i) and (iii)

B. (ii) and (iii)

C. (i) and (iii)

D. (i),(ii) and (iii)

**Answer: C**

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11. Dinitrogen is used

- A. In manufacture of calcium cyanamide
- B. In cryosurgery
- C. As a refrigerant
- D. All of these

Answer: D



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12. Regarding the oxidation states of elements of transition element the incorrect statement is

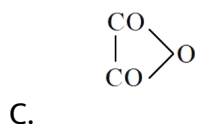
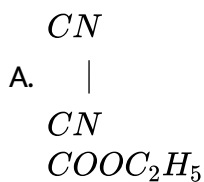
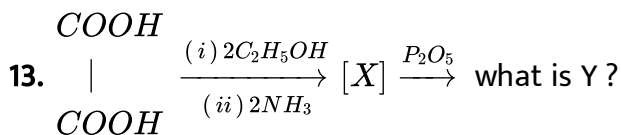
- A.  $Mo^{+6}$  is more stable than  $Cr^{+6}$
- B.  $W^{+6}$  is more stable than  $Cr^{+6}$

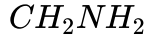
C. Oxidation of  $Cr^{+6}$  in acidic medium is better oxidizing agent than oxides of Mo and W in + 6 oxidation state .

D. Higher oxidation states are shown by metals when they are attached to  $\pi$  - acceptor ligands .

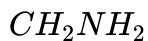
Answer: D

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D. |



**Answer: A**



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**14.** Gabriel phthalimide synthesis can be used to prepare:

- A. Only primary aromatic amine
- B. Only primary aliphatic amine
- C. Only primary and secondary amine
- D. All types of amine

**Answer: B**



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**15.** Glucose is

A. Fructose

B. Galactose

C. Talose

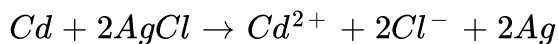
D. Ribose

**Answer: B**

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16. The temperature coefficient, of the emf, i.e.,  $\frac{dE}{dt} = -0.00065$  Volt  $deg^{-1}$  for the cell,  $Cd|CdCl_2(1M)||AgCl(s)|Ag$  at  $25^\circ$ .

Calculate the entropy changes  $\Delta S_{298K}$  for the cell reaction,



A.  $-105.5JK^{-1}$

B.  $-105.2JK^{-1}$

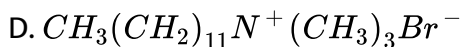
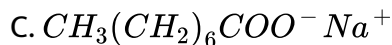
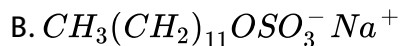
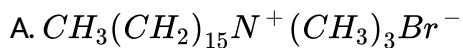
C.  $-75.7JK^{-1}$

D.  $-125.5JK^{-1}$

Answer: D

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17. Among the following the surfactant that will form micelles in aqueous solution at the lowest molar concentration at ambient condition is :



Answer: A

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18. If heat of dissociation of  $CHCl_2COOH$  is  $0.7\text{kcal/mole}$ , the  $\Delta H$  for the reaction  $CHCl_2COOH + KOH \rightarrow CHCl_2COO^-K^+ + H_2O$

A.  $-13\text{kcal}$

B.  $+13\text{kcal}$

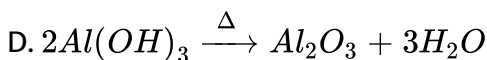
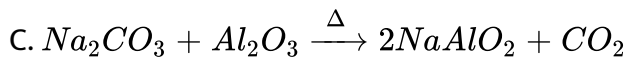
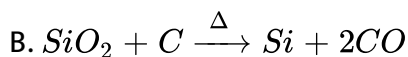
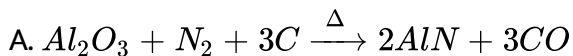
C.  $-14.4\text{kcal}$

D.  $-13.7\text{kcal}$

**Answer: A**

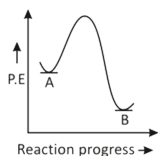
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**19.** Which of the following reactions is not involved in serpeck's process of leaching of  $Al_2O_3$  from white bauxite ore ?

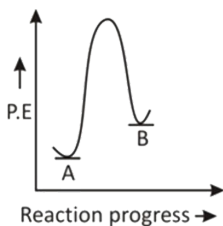


**Answer: C**

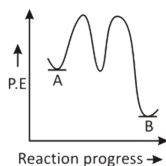
20. For a reaction  $A \rightarrow B$ ,  $E_a = 10\text{kJ/mol}$ ,  $\Delta H = 5\text{kJ/mol}$ . Thus potential energy profile for this reaction is



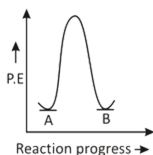
A.



B.



C.



D.

Answer: B

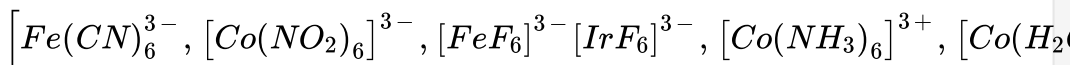
21. The amount (in grams) of sucrose (mol.wt. = 342g) that should be dissolved in 100 g water in order to produce a solution with a  $105.0^\circ C$  difference between the boiling point and freezing point is (Given that  $k_f = 1.86 Kkgmol^{-1}$  and  $k_b = 0.52 Kkgmol^{-1}$  for water) Report your answer by rounding it up to to the nearest whole number.

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22. Narcotics are chemical substances which produce sleep and unconsciousness. Morphine diacetate is most widely used analgesic . How many double bond equivalents are present in morphine diacetate ?

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23. Total number of low spin complexes are





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24.

Find the value  $\frac{x + y}{2}$  (include stereo isomers)

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25. 245 g impure sample of  $KClO_3$  on heating gives  $12gO_2(g)$  according to  $2KClO_3(s) \rightarrow 2KCl(s) + 3O_2(g)$  Calculate % purity of sample ?

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