

# CHEMISTRY

## BOOKS - NTA MOCK TESTS

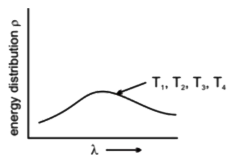
### NTA JEE MOCK TEST 29

#### Chemistry

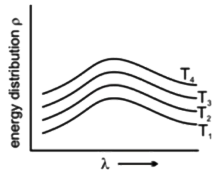
1. Shown below are the black body radiation curves at temperature  $T_1$  and  $T_2 (T_2 > T_1)$ .

Which of the following plots is correct?

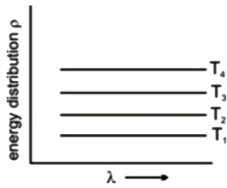
A.



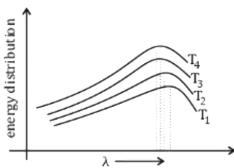
B.



C.



D.

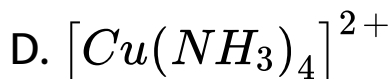
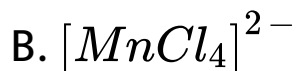
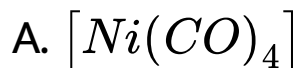


**Answer: D**



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2. The complex having square planar geometry is



**Answer: D**



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3. The dipole moment of  $AX_3$ ,  $BX_3$  and  $CX_3$  are 1.5 D, 0.5 D and 0 D respectively. The possible shapes of molecules may be (consider C has no Lone pair) (A, B and C are more electronegative than X)

A. Pyramidal, T- shape, Trigonal planar respectively.

B. T - shape, Pyramidal, Square planar respectively.

C. T-shape, Pyramidal, Trigonal planar  
respectively.

D. Pyramidal, T- shape, Square planar  
respectively

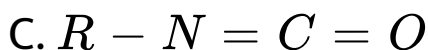
**Answer: A**



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4. The reaction of  $RCONH_2$  with a mixture of  $Br_2$  and aqueous  $KOH$  gives  $RNH_2$  as the

main product The intermediate (s) involved in this reaction is (are) .



**Answer: D**



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5. Sulphide ores are common for the metals

A. *Ag, Cu* and *Pb*

B. *Ag, Cu* and *Sn*

C. *Ag, Mg* and *Pb*

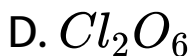
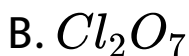
D. *Al, Cu* and *Pb*

**Answer: A**



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6. Bleaching powder contains a salt of an oxoacid as one of its components . The anhydride of that acid is



**Answer: A**



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7. Which of the following statements is correct for a lyophilic sol?

A. It is not easily solvated

B. The coagulation of this sol is irreversible in nature

C. It is unstable

D. It is quite stable in a solvent

**Answer: D**



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8. Reduction potentials of four elements P, Q, R, S is  $-2.90V$ ,  $0.34V$ ,  $1.2V$  and  $-0.76V$ .

The decreasing order of reducing power is

A. 'P > Q > R > S'

B. S > R > Q > P

C. P > S > Q > R

D. Q > S > R > P

**Answer: C**



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9. One mole of 4 - nitrocatechol (4 -nitro - 1, 2 - dihydroxybenzene) on treatment with an excess of  $NaH$  followed by one mole of methyl iodide and  $H_2O$  respectively gives

A. 4- nitro -1, 2- diamethoxybenzene

B. 4 - nitro - 5methyl -1, 2-  
dimethoxybenzene

C. 2 - methoxy - 5 nitrophenol

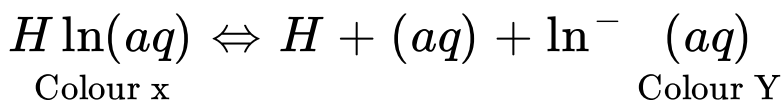
D. 2-methoxy - 4nitrophenol

**Answer: D**



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**10.** The colour change of an indicator HIn in acid base titrations is given below



Which of the following statements is correct?

A. In a strong alkaline solution colour Y will be observed

B. In a strong acidic solution colour Y will be observed

C. Concentration of  $\text{In}^-$  is higher than that of  $\text{HIn}$  at the equivalence point

D. In a strong alkaline solution colour X is observed

**Answer: A**



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11. When the concentration of nucleophile is reduced to half, the rate of  $S_{N2}$  reaction is decreased by

- A. 3 times
- B. 0.5 times
- C. 2 times
- D. 6 times

**Answer: B**



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12. Which of the following is correct?

A. A liquid with low vapour pressure will have a low surface tension and high boiling point

B. a liquid with high vapour pressure will have intermolecular forces and high boiling point

C. a liquid with low vapour pressure will have high surface tension and high

boiling point

D. a liquid with low vapour pressure will have surface tension and low boiling point

**Answer: C**



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**13.** Nitrogen exists as diatomic molecule and phosphorus as  $P_4$ . Why ?



- A.  $N_2$  has valence electrons only in bonding and nonbonding orbitals, while P has valence electrons in both bonding and antibonding orbitals
- B. higher electronegativity of N favour formation of multiple bonds
- C. bigger size of P does not favour multiple bonds
- D. P has preference to adapt structures with small bond angles

**Answer: C**



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**14.** Three samples of 100 g of water (samples I, II and III), initially kept at 1 atm pressure and 298 K were given the following treatments.

Sample I was heated to 320 K and cooled to 298 K

Sample II was heated to 300 K, cooled to 273 K and heated to 298 K

Sample III was heated to 373 K and cooled to

298 K

At the end of these processes, the internal energy of

A. III is the highest

B. II is the highest

C. I and III are the same, II is lower than that of I and III

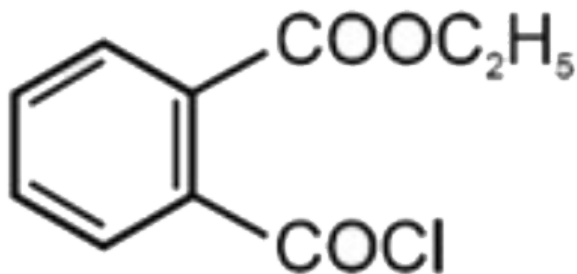
D. I, II and III are the same

**Answer: D**



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15. IUPAC name of the compound



A. 2 - Chlorocarbonyl

ethylbenzenecarboxylate

B. 2 - Carboxyethylbenzoyl chloride

C. Ethyl 2 - (chlorocarbonyl)

benzenecarboxylate

D. Ethyl - 1 - (chlorocarbonyl)

benzenecarboxylate

**Answer: C**



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**16.** When a metal is electroplated with silver

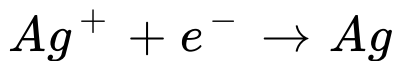
(Ag)

A. The metal is the anode

B. Ag metal is the cathode

C. The solution contains  $Ag^+$  ions

D. The reaction at the anode is



**Answer: C**



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**17.** Which of the following amino acid is basic in nature ?

A. Valine

B. Tyrosine

C. Arginine

D. Leucine

**Answer: C**



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**18.** Iodine is a solid and sublimes at ordinary temperature. This is because of :

A. weak I - I bonds

B. strong I - I bonds

C. lone pair - bond pair repulsions

D. weak van der Waals forces between  $I_2$   
molecules

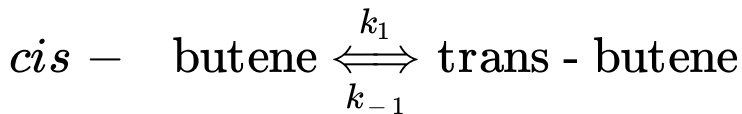
**Answer: D**



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**19.** The equilibrium constant of the following isomerisation reaction at 400 K and 298 K are 2.07 and 3.42 respectively.





Which of the following is/are correct?

I. The reaction is exothermic

II. The reaction is endothermic

III. At 400 K 50% of cis - butene and 50 % of trans - butene are present of equilibrium

IV. Both at 298 K and 400 K,  $k_1 = k_{-1}$ .

A. I and IV

B. II and IV

C. I and III

D. I only

**Answer: D**



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**20.** Which of the following statements regarding boric acid is false?

- A. It acts as a tribasic acid
- B. It has a planar structure
- C. It acts as a monobasic acid
- D. It is soluble in hot water

**Answer: A**

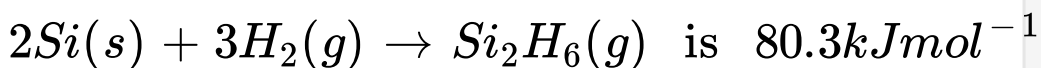


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21. Silanes are silicon hydrides of general formula  $Si_nH_{2n+2}$  and have several applications. From the data given below, the bond dissociation enthalpy of  $Si - Si$  bond (in  $\text{kJ mol}^{-1}$ ) is

Given:

$\Delta H$  of the reaction



Bond dissociation enthalpy for

$$H - H = 436 \text{ kJ mol}^{-1}$$

Bond dissociation enthalpy for

$$Si - H = 304 \text{ kJ mol}^{-1}$$

$$\Delta_f H[Si(g)] = 450 \text{ kJ mol}^{-1}$$



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22. When 10.6 g of a non volatile substance is dissolved in 750 g of ether, its boiling point is raised  $0.266^\circ C$ . The molecular weight of the substance is

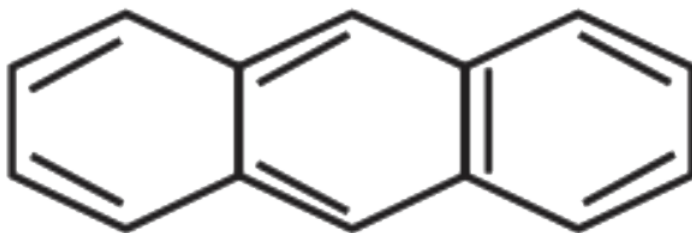
(Given : Molal boiling point constant for ether is  $2.0^{\circ} C kg / mol$ )

Report your answer by rounding it up to nearest whole number.



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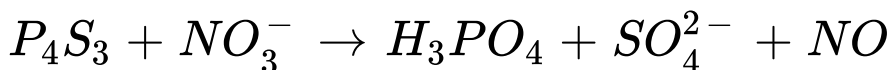
**23.** The number of resonance structures for Anthracene are





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24. The unbalanced equation for the reaction of  $P_4S_3$  with nitrate in aqueous acidic medium is given below.



The number of moles of water required per mol of  $P_4S_3$  is  $\frac{x}{3}$ , the value of x is



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25. The total number of cyclic isomers of formula  $C_6H_{12}$  is/are



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