CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA JEE MOCK TEST 95

Chemistry

1. Which graph shows how the energy E of a photon of light is related to its wavelengths (λ)?

A. 

B. 

C. 

D. 

Answer: D

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2. $20\ \%\ N_2O_4$ molecules are dissociated in a sample of gas at $27^\circ C$ and 760 torr. Calculate the density of the equilibrium mixture.

A. 1.48 g/L

B. 1.84 g/L

C. 2.25 g/L

D. 3.12 g/L

Answer: D

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3. Reaction between $(C_2H_5)_2Cd$ and CH_3COCl leads to the formation of

A. Diethyl ketone`

B. Ethyl methyl ketone

C. Dimethyl ketone

D. Acetaldehyde

Answer: B

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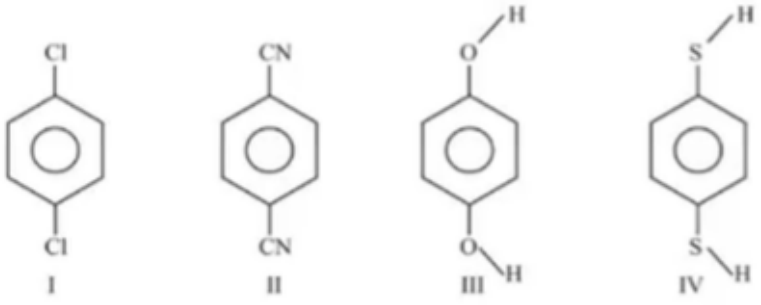
4. For which of the following molecules $\Delta\mu \neq 0$



A. Only I

B. I and II

C. Only III

D. III and IV

Answer: D

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5. $BaTi[Si_3O_9]$ is a class of

A. orthosilicateq

B. cyclic silicate

C. chain silicate

D. sheet silicate

Answer: B

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6. In Mayer's relation:

$C_P - C_V = R$

'R' stands for:

A. translational kinetic energy of 1 mol gas

B. rotational kinetic energy of 1 mol gas

C. vibrational kinetic energy of 1 mol gas

D. work done to increase the temperature of 1 mol gas by one degree

Answer: D

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7. Products of the reaction which is given below will be

$$CH_3 - \underset{\underset{CH_3}{|}}{C} = CH - CH_3 \xrightarrow[(iii)\, NalO_4]{(i)\, OsO_4\, (ii)\, aq.\, NaHSO_3}$$

A. Vic diol

B. Vic dicarbonyl compound

C. $CH_3 - \overset{\overset{O}{||}}{C} - CH_3$ and $CH_3 - CHO$

D. $CH_3 - \overset{\overset{O}{||}}{C} - CH_3$ and $CH_3 - COOH$

Answer: C

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8. (Z) -3- bromo -3- hexene when treated with CH_3O^- in CH_3OH gives

A. 3 - hexyne

B. 2 - hexyne

C. 2, 3 - hexadiene

D. 2, 4 - hexadiene

Answer: A

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9. Two oxides of nitrogen, NO and NO_2 are allowed to react together at 243 K and form coloured compound of

nitrogen (X), When compound (X) reacts with water to yeild another compound of nitrogen (Y). The shape of the anion (Y) molecule is

A. angular

B. triangular pyramidal

C. tetrahedron

D. square planar

Answer: A

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10. A carbon compound contains 12.8% of carbon, 2.1% of hydrogen and 85.1% of bromince. The

molecular

weight of the compound is 187.9. Calculatte the

molecular formula of the compound.

(Atomic weight of H $+1.008,$ C $= 12.0$ and Br = `79. 9))

A. CH_3Br

B. CH_2Br_2l

C. $C_2H_4Br_2$

D. $C_2H_3Br_3$

Answer: C

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11. Calcium lactate is a salt of weak organic acid and strong base represented as $Ca(LaC)_2$. A saturated solution of $Ca(LaC)_2$ contains 0.6 mole in 2 litre solution. pOH of solution is 5.60. If $90\,\%$ dissociation of the salt takes place then what is pK_a of lactic acid?

A. $2.8 - \log(0.54)$

B. $2.8 + \log(0.54)$

C. $2.8 + \log(0.27)$

D. None of these

Answer: A

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12. The octahedral complex/complex ion which shown both facial and meridional isomers is

A. triglycinato cobalt (II)

B. tris (ethylene diamine) cobalt (III)

C. dichloro diglycinato cobalt (III)

D. trioxalate cobaltate (III)

Answer: A

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13. The correct code for stability, of oxidation states for given cations is:

(i) $Pb^{2+} > Pb^{4+}, Tl^{+} < Tl^{3+}$

(ii) $Bi^{3+} < Sb^{3+}, Sn^{3+} < Sn^{4+}$

(iii) $Pb^{3+} > Pb^{4+}, Bi^{3+} > Bi^{3+}$

(iv) $Tl^{3+} < \ln^{3+}, Sn^{2+} > Sn^{4+}$

(v) $Sn^{2+} < Pb^{2+}, Sn^{4+} > Pb^{4+}$

(vi) $Sn^{2+} < Pb^{2+}, Sn^{4+} < Pb^{4+}$

A. V and VI

B. I, III and VI

C. III and V

D. II and IV

Answer: C

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14. The most appropriate sequence of the reactions for carrying out the following conversion is

A. (i) peracid (ii) H^+ (iii) $Zn/dil.\ HCl$

B. (i) Alkaline $KMnO_4$ (ii) $NaIO_4$ (iii) N_2H_4/KOH

C. (i) Alkaline $KMnO_4$ (ii) H^+ (iii) $Zn/dil.\ HCl$

D. (i) O_3/Me_2S (ii) $NaOEt$ (iii) N_2H_4/KOH

Answer: D

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15. pH of 0.1 M monobasic acid is found to be 2 . Hence its osmotic pressure at a given temp. T K is :

A. 0.1 RT

B. 0.11 RT

C. 1.1 RT

D. 0.01 RT

Answer: B

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16. The reduction of an oxide by aluminium is called

A. Beeyer's process

B. Godschmidt's aluminothermite process

C. Hall's process

D. van Arkel process

Answer: B

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17. Match list - I with list - II and select the correct answer using the codes given below

A. P (3), Q(1), R(2), S(4)

B. P(3), Q(1), R(4), S(2)

C. P(1), Q(3), R(4), S(2)

D. P(4), Q(3), R(2), S(1)

Answer: A

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18. Which of the following is second ion is more stable than the first

A. $\underset{\text{I}}{CH_2 = \overset{\Theta}{C}H}$ and $\underset{\text{II}}{CH = \overset{\theta}{C}}$

B. $\underset{\text{I}}{C_6H_5 - \overset{\Theta}{C}H_2}$ and $\underset{\text{II}}{CH_2 = CH - \overset{\Theta}{C}H_2}$

C.

$$CH_3 - \overset{\Theta}{C}H - CH = CH_2 \text{ and } \overset{\Theta}{C}H_2 - CH = CH_2$$

D. 

Answer: A

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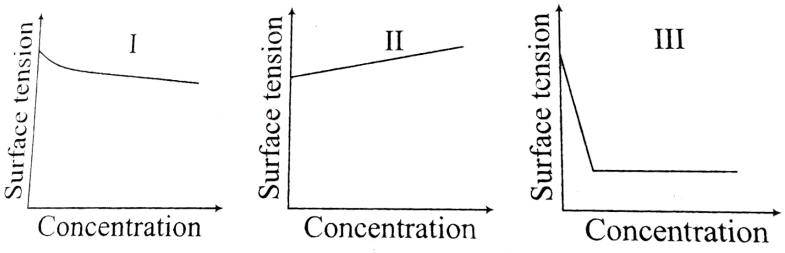
19. The equalitative sketches I, II and III given below show the variation of surface tension with molar concentration of three diferent aqueous solutions of KCl, CH_3OH and $CH_3(CH_2)_{11}OSO_3^- Na^+$ at room temperature.



The correct assignment of the sketches is

A.

$I: KCl, II: CH_3OH, III: CH_3(CH_2)_{11}OSO_3^- Na^+$

B.

$I: CH_3(CH_2)_{11}OSO_3^- Na^+, II: CH_3OH, III: KCl$

C.

$I: KCl, II: CH_3(CH_2)_{11}PSO_3^- Na^+, III: CH_3OH$

D.

$I: CH_3OH, II: KCl, III: CH_3(CH_2)_{11}OSO_3^- Na^+$

Answer: D

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20. A graph plotted between $\log k$ versus $1/T$ for calculating activation energy is shown by

A. 

B. 

C. 

D. 

Answer: B

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21. 60 g of gaseous C_2H_6 are mixed with 28 g of carbon monoxide. The pressure of the resulting gaseous mixture is 3 atm. The partial pressure in atm. Of C_2H_6 in the mixture is

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22. How many acidic H - atoms are present in this compound that can react with $\overset{\Theta}{R}$ for $R - MgX$ to give alkane

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23. 

moles of CO_2 evolved during given reaction?

What is the value of 'n' here

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24. A current of 2.0A passed for 5 hours through a molten metal salt deposits 22.2 g of metal (At. Wt. =177). The oxidation state of the metal in the metal salt is

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25. If $XeOF_4$ how many angles are of 90° ?

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