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CHEMISTRY

BOOKS - DISHA PUBLICATION

CHEMISTRY (HINGLISH)

JEE MAIN 2019

Mcqs

1. The element having greatest difference between its first and second ionization energies, is:

A. Ca

B. Sc

C. Ba

D. K

Answer: D

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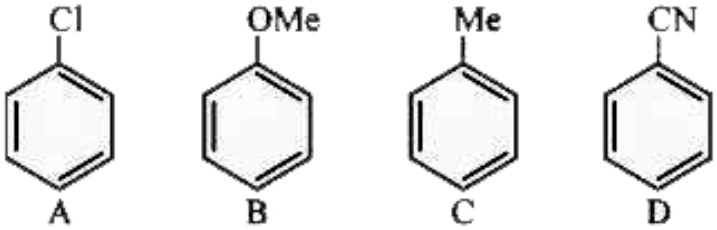
2. The increasing order of reactivity of the following compounds towards aromatic

electrophilic substitution reaction is:



A. $D < A < C < B$

B. $B < C < A < D$

C. $A < B < C < D$

D. $D < B < A < C$

Answer: A

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3. Consider the van der Waals constants, a and b, for the following gases.

Gas	Ar	Ne	Kr	Xe
$a/(\mathrm{atm\,dm^3mol^{-2}})$	1.3	0.2	5.1	4.1
$b/(10^{-2}\mathrm{dm^6mol^{-1}})$	3.2	1.7	1.0	5.0

Which gas is expected to have the highest critical temperature?

A. Kr

B. Ne

C. Xe

D. Ar

Answer: A

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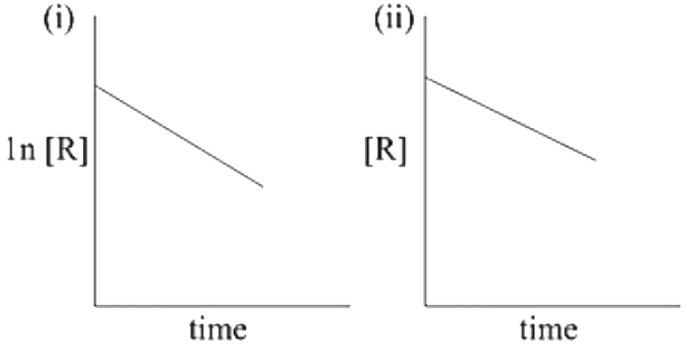
4. The given plots represent the variation of the concentration of a reactant R with time for two different reaction (i) and (ii) The respective orders of the reactions are



A. $1, 0$

B. $1, 1$

C. $0, 1$

D. $0, 2$

Answer: A

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5. Which of the following are not state functions?

(I) $q + w$

(II)q

(III) w

(IV) $H - TS$

A. (B) and (C)

B. (B), (C) and (D)

C. (A) and (D)

D. (A), (B) and (C)

Answer: A

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6. The ore that contains the metal in the form of fluoride is

A. cryolite

B. malachite

C. magnetite

D. sphalerite

Answer: A

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7. Excessive release of CO_2 into the atmosphere result in :

A. global warming

B. polar vortex

C. formation of smog

D. depletion of ozone

Answer: A

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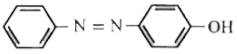
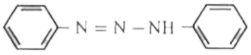
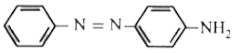
8. Aniline dissolved in dilute HCL is reacted with sodium nitrate at $0^{\circ}C$. This solution was added dropwise to a solution containing equimolar mixture of aniline and phenol in dil. HCl. The structure of the major product is :

A. 

B. 

C. 

D.

Answer: C

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9. Among the following, the molecule expected to be stabilized by anion formation is :

C_2, O_2, NO, F_2

A. C_2

B. F_2

C. NO

D. O_2

Answer: A

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10. The correct order of the oxidation states of nitrogen in NO, N_2O, NO_2 and N_2O_3 is :

A. $NO_2 < NO < N_2O_3 < N_2O$

B. $NO_2 < N_2O_3 < NO < N_2O$

C. $N_2O < N_2O_3 < NO < NO_2$

D. $N_2O < NO < N_2O_3 < NO_2$

Answer: D

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11. Liquid 'M' and liquid 'N' form an ideal solution. The vapour pressures of pure liquids 'M' and 'N' are 450 and 700 mmHg, respectively, at the same temperature. Then correct statement is:

(x_M = Mole fraction of 'M' in solutions ,

x_N = Mole fraction of 'N' in solution ,

y_M = Mole fraction of 'M' in vapour phase ,

y_N = Mole fraction of 'n' in vapour phase)

A. $\frac{x_M}{x_N} = \frac{y_M}{y_N}$

B. $(x_M - y_M) < (x_N - y_N)$

C. $\frac{x_M}{x_N} < \frac{y_M}{y_N}$

D. $\frac{x_M}{x_N} > \frac{y_M}{y_N}$

Answer: D

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12. The osmotic pressure of a dilute solution of a compound XY in water is four times that of a solution of 0.01 M $BaCl_2$ in water. Assuming complete dissociation of the given ionic compounds in water, the concentration of XY (in $\mathrm{mol}L^{-1}$) in solution is:

A. 4×10^{-2}

B. 6×10^{-2}

C. 4×10^{-4}

D. 16×10^{-4}

Answer: B

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13. The number of water molecule(s) not coordinated to copper ion directly in $CuSO_4.5H_2O$, is _____ .

A. 2

B. 3

C. 1

D. 4

Answer: C

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14. The standard Gibbs energy for the given cell reaction is $KJmol^{-1}$ at 298 K is :

$Zn(s) + CU^{2+}(aq) \rightarrow Zn^{2+}(aq) + Cu(s)$

$E^{\circ} = 2Vat298K$

(Friday's constant , $F = 96000Cmol^{-1}$)

A. -384

B. 384

C. 192

D. -192

Answer: A

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15. The major product of the following reaction is

A.

B.

C.

D.

Answer: A

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16. For any given series of spectral lines of atomic hydrogen let $\Delta\bar{v} = \bar{v}_{\max}$ fl $\bar{v}_{\min}$ be the difference in maximum and minimum frequencies in

A. $4:1$

B. $9:4$

C. $5:4$

D. $27:5$

Answer: B

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17. The organic compound that gives following qualitative analysis is :

	Test	Inference
(a)	$Dil.\ HCl$	Insoluble
(b)	$NaOH$ solution	soluble
(c)	Br_2 / water	Decolourization

A.

B.

C.

D.

Answer: A

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18. C_{60} , an allotrope of carbon contains :

A. 12 hexagons and 20 pentagons

B. 18 hexagons and 14 pentagons

C. 16 hexagons and 16 pentagons

D. 20 hexagons and 12 pentagons

Answer: D

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19. The major product of the following reaction is:

A.

B.

C.

D.

Answer: D

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20. The one that will show optical activity is: (en = ethane-1,2-diamine)

A.

B.

C.

D.

Answer: C

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21. The correct IUPAC name of the following compound is

A. 5 - chloro -4- methyl -1- nitrobenzene

B. 2 - chloro -1- methyl -4- nitrobenzene

C. 3 - chloro -4- methyl -1- nitrobenzene

D. 2 - methyl -5- nitro -1- chlorobenzene

Answer: B

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22. Match the catalysts (Column I) with products (Column II)

Column I Catalyst	Column II Product
$(A) V_2O_5$	(i) Polyethylene
$(B) TiCl_4 / Al(Me)_3$	(ii) ethanol
$(C) PdCl_2$	$(iii) H_2SO_4$
(D) Iron Oxide	$(iv) NH_3$

A.

$(A) - (iii), (B) - (iv), (C) - (i), (D) - (ii)$

B.

$(A) - (ii), (B) - (iii), (C) - (i), (D) - (iv)$

C.

$(A) - (iii), (B) - (i), (C) - (ii), (D) - (iv)$

D.

$(A)-(iv),(B)-(iii),(C)-(ii),(D)-(i)$

Answer: C

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23. Which of the following statements is not true about sucrose?

A. It is a non reducing sugar.

B. The glycosidic linkage is present between C_1 of $\alpha-$ glucose and C_1 of $\beta-$ fructose.

C. It is also named as invert sugar.

D. On hydrolysis, it burns in air to give:

Answer: B

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24. Magnesium powder burns in air to give :

A. $Mg(NO_3)_2$ and Mg_3N_2

B. MgO and Mg_3N_2

C. MgO only

D. MgO and $Mg(NO_3)_2$

Answer: B

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25. The major product of the following reaction is

:

A.

B.

C.

D.

Answer: C

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26. The major product of the following reaction is

$$CH_3C \equiv CH \xrightarrow[(ii)\,DI]{(i)\,DCl\,(1\text{equiv})}$$

A. $CH_3CD(I)CHD(Cl)$

B. $CH_3CD(Cl)CHD(I)$

C. $CH_3CD_2CH(Cl)(I)$

D. $CH_3C(I)(Cl)CHD_2$

Answer: D

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27. major product of the following reaction is :

$CH_3CH = CHCO_2CH_3 \xrightarrow{LiAlH_4}$

A. $CH_3CH_2CH_2CO_2CH_3$

B. $CH_3CH = CHCH_2OH$

C. $CH_3CH_2CH_2CH_\circ OH$

D. $CH_3CH_2CH_2CHO$

Answer: B

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28. The degenerate orbitals of $\left[Cr(H_2O)_6\right]^{3+}$ are:

A. d_{xz} and d_{yz}

B. d_{yz} and d_{z^2}

C. d_{z^2} and d_{xz}

D. $d_{x^2-y^2}$ and d_{xy}

Answer: A

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29. The aerosol is a kind of colloid in which :

A. solid is dispersed in gas

B. gas is dispersed in solid

C. gas is dispersed in liquid

D. liquid is dispersed in water

Answer: A

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30. For a reaction,

$N_2(g) + 3H_2(g) \rightarrow 2NH_3g)$, identify dihydrogen (H_2) as a limiting reagent in the following reaction mixtures.

A. 56 g of $N_2 + 10$ g of H_2

B. 35 g of $N_2 + 8$ g of H_2

C. 28 g of $N_2 + 6$ g of H_2

D. 14 g of $N_2 + 4$ g of H_2

Answer: A

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