CHEMISTRY

BOOKS - MTG CHEMISTRY (BENGALI ENGLISH)

QUESTION PAPER 2017

Chemistry

1. ADP and ATP differ in the number of

A. phosphate units

B. ribose units

C. adenine base

D. nitrogen atom

Answer:

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2. The compound that would produce a nauseating smell odour with a hot mixture of

chloroform and ethanolce potassium hydroxide is

A. $PhCONH_2$

B. $PhNHNH_2$

C. $PhNH_2$

D. $PhOH$

Answer:

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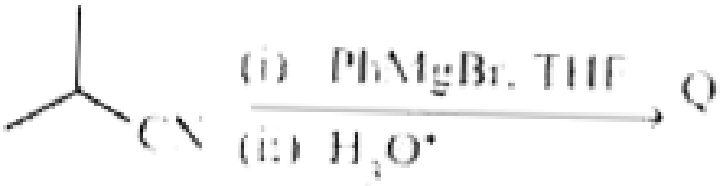
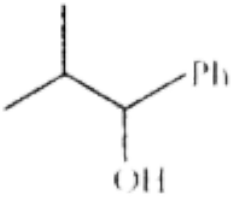
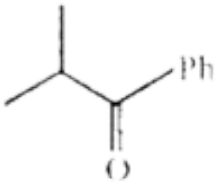
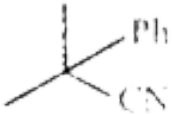
3. For the reaction below

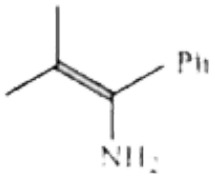


the strcture of the product Q is

A. 

B. 

C. 

D. 

Answer:

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4. You are supplied with 500 ml each of 2N HCI and HCI. What is the maximum volume of 3M HCI that you can prepare using only these two solutions ?

A. 250 ml

B. 500 ml

C. 750 ml

D. 1000 ml

Answer:

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5. Which one of the following corresponds to a photon of highest energy ?

A. $\lambda = 300mm$

B. $v = 3 \times 10^8 s^{-1}$

C. $v = 30mc^{-1}$

D. $\varepsilon = 6.626 \times 10^{-27} J$

Answer:

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6. Assuming the compound to be completely dissociated in aqueous solution, density the pair of the solutions than can be epected to be isotonic at the same temperature :

A. 0.01 M Urea and 0.01 M NaCl

B. 0.02 M Urea and 0.01 M Na_2SO_4

C. $0.3MNaCI$ and $0.02MMgCl_2$

D. 0.01 M Socrose and 0.02 M glucose

Answer:

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7. How many faradys are required to reduce 1 mole fo Cr_2O_7 to Cr^{3-} in acid medium ?

A. 2

B. 3

C. 5

D. 6

Answer:

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8. Equilibrium constant for the following reactions at 1200 K are given :

$2H_2O(g) \Leftrightarrow 2H_2(g) + O_2(g), K_1 = 6.4 \times 10^{-8}$

$2CO_2(g) \Leftrightarrow 2CO(g) + O_2(g), K_2 = 1.6 \times 10^{-6}$

The equilibrium constant for the reaction

$H_2(g) + CO_2(g) \Leftrightarrow CO(g) + H_2O(g) at 1200K$

will be

A. 0.05

B. 20

C. 0.2

D. 5.0

Answer:

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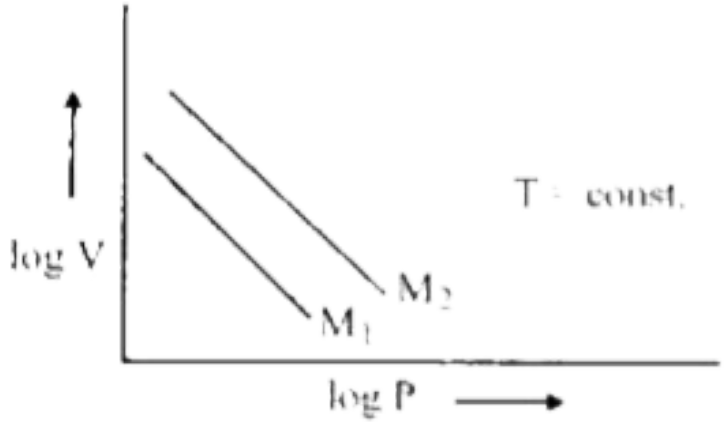

9.

For same mass of two different ideal gases of molecular weight M_1 and M_2 plots of log V vs log P at a given constant temperature are show, Identify the correct option.

A. $M_1 > M_2$

B. $M_1 = M_2$

C. $M_1 < M_2$

D. Can be predicted only temperature is known

Answer:

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10. Which of the following has the dimensions of ML^0T^{-2} ?

A. Coefficient of viseosity

B. Surface tension

C. Vapour pressure

D. Kinetic energy

Answer:

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11. If the given four electronic configurations

i)$n = 4, l = 1$

ii)$n = 4, l = 0$

iii) $n = 3, l = 2$

iv)$n = 3, l = 1$

A. $iv < ii < iii < i$

B. $ii < iii < i < iv$

C. $i < iii < ii < iv$

D. $ii < i < iv < iii$

Answer:

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12. Which of the following sets of quantum numbers represnets the 19^{th} electron fo Cr(Z=24) ?

A. $\left(4, 1, -1+\frac{1}{2}\right)$

B. $\left(4, 0, 0+\frac{1}{2}\right)$

C. $\left(3, 2, 0-\frac{1}{2}\right)$

D. $\left(3, 2, -2, +\frac{1}{2}\right)$

Answer:

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13. 0.126 g of an acid in needed to completely neutralize 20 ml 0.1 (NaH) solution. The equivalent wiehgt of the acid is

A. 53

B. 40

C. 45

D. 63

Answer:

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14. In a flask, the weight ratio of $CH_4(g)$ and $SO_2(g)$ at 298 K and bar is $1:2$. The ratio of the number of molecules of $SO_2(g)$ and $CH_4(g)$ is

A. $1:4$

B. $4:1$

C. $1:2$

D. $2:1$

Answer:

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15. $C_6H_5F^{18}$ is a F^{18} radio-isotops labelled organic compound F^{18} decays by positron emission. The product resulting one decay is :

A. $C_6H_4O^{18}$

B. $C_6H_4Ar^{19}$

C. $B^{12}C_5H_5F$

D. $C_6H_5O^{18}$

Answer:

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16. Dissolving NaCN in de-ionized water will result in a solution having

A. $pH < 7$

B. $pH = 7$

C. $pOH = 7$

D. $pH > 7$

Answer:

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17. Among Me_3N, C_5H_5N and $MeCN (Me =$ methyl group) the electronegativity of N is in the order :

A. $MeCN > C_5H_5N > Me_3N$

B. $C_5H_5N > Me_3N > MeCN$

C. $Me_3N > MeCN > C_5H_5N$

D. Electronegativity same in all

Answer:

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18. The shape of XeF_5^- will be :

A. Square pyramid

B. Trigonal bipyrmadial

C. Planar

D. Pentagonal bipyrmide

Answer:

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19. The ground state, magnetic property of B_2 and C_2 molecules will be

A. B_2 paramagnetic and C_2 diamagnetic

B. B_2 diamagnetic and C_2 paramagnetic

C. Both are diamagnetic

D. Both are paramagnetic

Answer:

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20. The number of unpaired electrons in $[NiCl_4]^{2-}$, $Ni(CO)_4$ and $[Cu(NH_3)_4]^{2}$, respectively are

A. $2, 2, 1$

B. $2, 0, 1$

C. $0, 2, 1$

D. 2,2,0

Answer:

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21. Which of the following atoms should have the highest 1^{st} electron affinity ?

A. F

B. O

C. N

D. C

Answer:

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22. $PbCl_2$ is insoluble in cold water Addition of HCI increases its solubility de to

A. Formation of soluble complex anions like $[Pbcl_3]^-$

B. Oxidation of Pb(11) to Pb(IV)

C. Fomation of $\left[Pb(H_2O)_6\right]^{2-}$

D. Formation of polymeric lead complexes

Answer:

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23. Of the following compounds which one is the strongest Bronsted acid in a aqueous solution

A. $HClO_3$

B. $HClO_2$

C. $HCOI$

D. $HOBr$

Answer:

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24. The correct basiecity order of the following lanthanide ions is

A. $La^{3-} > Lu^{3+} > Ce^{3+} > Eu^{3+}$

B. $Ce^{3+} > Lu^{3-} > La^{3-} > Eu^{3+}$

C. $Lu^{3+} > Cu^{3+} > Eu^{3-} > La^{3+}$

D. $Lu^{3+} > Cu^{3+} > Eu^{3-} > Lu^{3+}$

Answer:

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25. When $BaCl_2$ is added to an aqueous salt solution a white precipitate is obtained. The anion among CO_3^2. SO_3^2 and SO_4^2 that was present in the solution can be :

A. CO_3^2 but not any of the other two

B. SO_3^2 but not any of the other two

C. SO_4^2 but not any of the other two

D. Any of them

Answer:

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26. In the IUPAC system $PhCH_2CH_2CO_2H$ is named as

A. 3-phenylpanoic acid

B. benzylacetic acid

C. carboxyethylbenzene

D. 2-phenylpropanoic acid

Answer:

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27. The isomerisation of 1-butyne to 2-butyne can eb achieved by treatement with

A. hydrochloric acid

B. ammoniacal silver nitrate

C. ammoniacal cuprous chloride

D. ethanolic potassium hydroxide

Answer:

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28. The correct order of acid strengths of benzoic acid (X) peroxybenoic acid (Y) and p-nitrobenzoic acid (Z) is

A. $Y > Z > X$

B. $Z > Y > X$

C. $Z > X > Y$

D. $Y > X > Z$

Answer:

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29. The yield of acctanilide in the reaction $(100^{\circ}$ conversion) of 2 moles of aniline with 1 mole of accetic anhydride is

A. 270g

B. 135 g

C. 67.5 g

D. 177 g

Answer:

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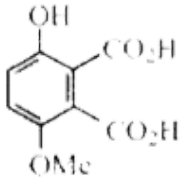
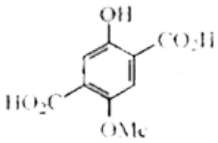
30. The structure of the product P of the following reaction is

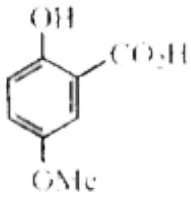
A.

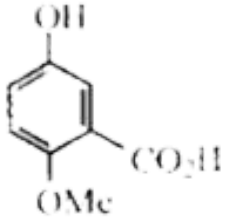


B.



C.



D. 

Answer:

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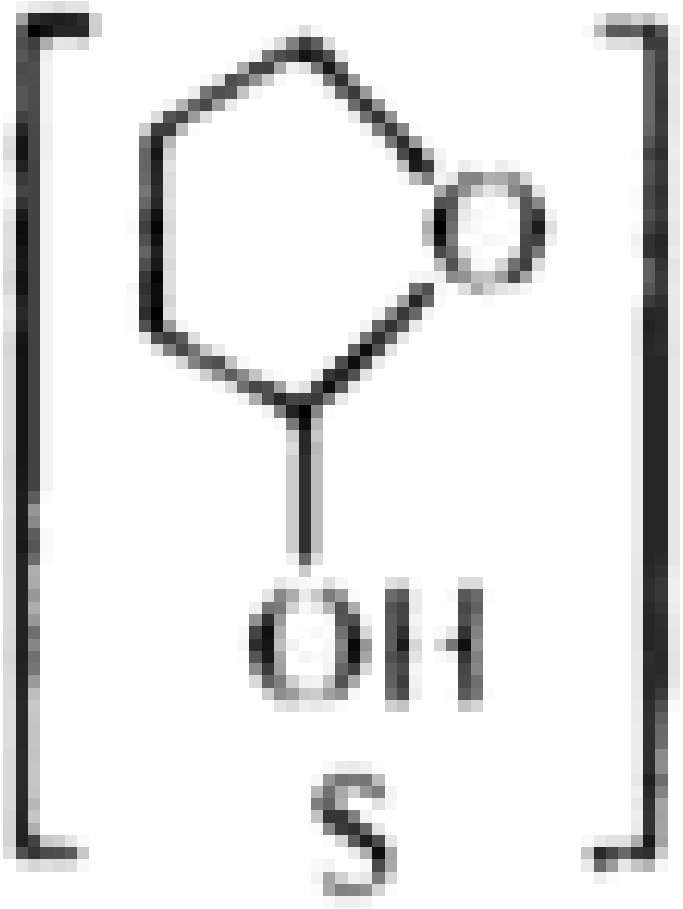
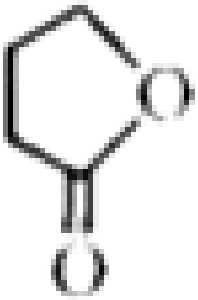
31. Reduction of the lactor S

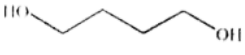


with

sodium borohydride gives

A. 

B. 

C. 

D. 

Answer:

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32. What will be the normality of the salt solution obtained by neutralizing x ml y (N) HCI with y ml x(N) NaOH , and finally adding (x+y) ml distilled water ?

A. $\frac{2(x+y)}{xy}N$

B. $\frac{xy}{2(x+y)}N$

C. $\left(\frac{2xy}{x+y}\right)N$

D. $\left(\frac{x+y}{xy}\right)N$

Answer:

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33. In a close- packed body- centred cubic lattice of potassium, the correct relation between the atomic radius (r) of potassium and the edge- length (a) of the cube is

A. $r = \frac{a}{\sqrt{2}}$

B. $r = \frac{a}{\sqrt{3}}$

C. $r = \frac{\sqrt{3}}{2}a$

D. $r = \frac{\sqrt{3}}{4}a$

Answer:

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34. Which of the following solutions will turn voilet when a drop of lime jice is added to it ?

A. A solution of Nal

B. A solution mixture of KI and $NalO_3$

C. A solution mixture of NaI andKI

D. A solution mixture of

KIO_3 and $NaIO_3$

Answer:

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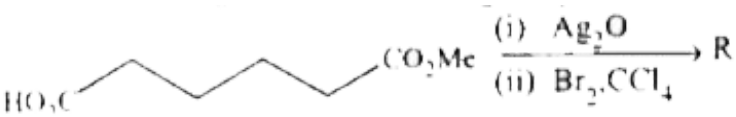
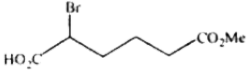
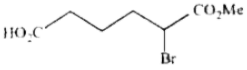
35. The reaction sequence given below gives prodct R.



A. 

B. 

C. 

D. 

Answer:

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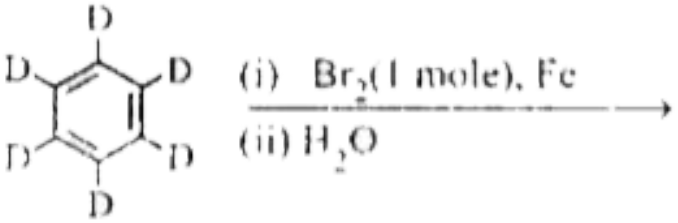
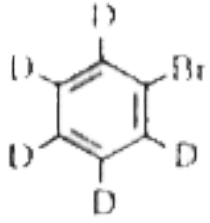
36. The major product (s) obtained from the following reaction of 1 mole of

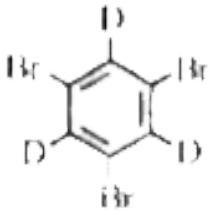
hexadeuterobezne is/are



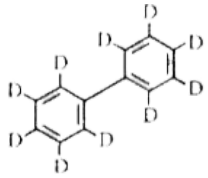
A.



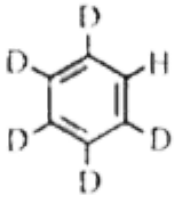
B.



C.



D.



Answer:

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37. Identify the correct statement (s) :

A. Angular momentum of the electron is expressed an integral multiples of $\frac{h}{2\pi}$

B. The first Bohr radius is 0.529°

C. The energy of the n-th level E_n is proportional to $\frac{1}{n^2}$

D. The spacing between adjacent levesl increases with increase in 'n'

Answer:

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38. During electrolysis of molten NaCl, some water was added What will happen

A. Electrolysis will stop

B. Hydrogen will be evolved.

C. Some amount of eaustic soda will be formed

D. A fire is likely

Answer:

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39. The role of fluorspar, which is added in small quantities in the electrolytic reduction of alumina dissolved in fused cryolite is

A. as a catalyst

B. to make fused melting temperature of the mixture

C. to lower the melting temperature of the mixture

D. to decreases the rate of oxidation of carbon at anode

Answer:

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40. The reduction of benzenediazonium chloride to phenyl hydrazine can be accomplished by

A. $SnCl_2, HCI$

B. Na_2SO_3

C. CH_3CH_2OH

D. H_3PO_2

Answer:

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