



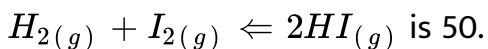
CHEMISTRY

BOOKS - MTG CHEMISTRY (HINGLISH)

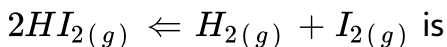
PRACTICE PAPER 1

Practice Paper 1

1. The equilibrium constant at 717 K for the reaction:



The equilibrium constant for the reaction:



A. 0.5

B. 2×10^{-2}

C. 4.0

D. 1×10^{-1}

Answer: B



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2. Which of the following statements is not correct?

- A. the shape of an atomic orbital depends on the azimuthal quantum number.
- B. the orientation of an atomic orbital depends on the magnetic quantum number.
- C. The energy of an electron in an atomic orbital of multi-electron atom depends on principal quantum number.

D. The number of degenerate atomic orbitals of one type depends on the values of azimuthal and magnetic quantum numbers.

Answer: C

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3. Which one of the following pairs do not impart colour to the flame?

A. $BeCl_2$ and $SrCl_2$

B. $BeCl_2$ and $MgCl_2$

C. $CaCl_2$ and $BaCl_2$

D. $BaCl_2$ and $SrCl_2$

Answer: B

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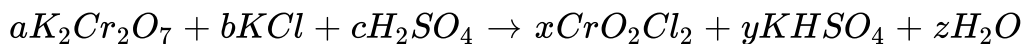
4. Which is not correct?

- A. GeO is acidic
- B. GeCl_2 is more stable than GeCl_4
- C. GeO_2 is acidic.
- D. GeCl_4 in HCl forms $[\text{GeCl}_6]^{2-}$ ion.

Answer: B

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5.



The above equation balances when

A. $a=2, b=4, c=6$ and $x=2, y=6, z=3$

B. $a=4, b=2, c=6$ and $x=6, y=2, z=3$

C. $a=6, b=4, c=2$ and $x=6, y=3, z=2$

D. $a=1, b=4, c=6$ and $x=2, y=6, z=3$

Answer: D

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6. Which of the following is correct for SF_4 ?

A. It has a see-saw shape

B. It has two lone pairs of electrons

C. It has a square planar geometry

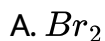
D. It has five bonding pairs.

Answer: A



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7. The strongest bond is present in



Answer: C



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8. Carbon and oxygen form two compounds. Carbon content in one of them is 42.9% and in the others is 27.3%. The given data is in agreement with

- A. law of conservation of mass
- B. law of multiple proportions
- C. law of reciprocal proportions
- D. law of definite proportions

Answer: B



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9. For the reaction at $25^{\circ}C$, $X_2O_4(l) \rightarrow 2XO_2(g)$, $\Delta H = 2.1kcal$ and $\Delta S = 20 \text{ cal } K^{-1}$

. The reaction would be

- A. spontaneous
- B. non-spontaneous
- C. at equilibrium
- D. unpredictable

Answer: A



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10. Which of the following statements is incorrect?

- A. H_2O_2 is a pale blue viscous liquid
- B. H_2O_2 can act as an oxidising as well as a reducing agent
- C. In H_2O_2 , the two hydroxyl groups lie on the same plane.
- D. H_2O_2 has an 'open-book' is correct?

Answer: C



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11. Which of the following statements is correct?

- A. E_{cell}° and $\Delta_r G$ of cell reaction both are extensive properties
- B. E_{cell}° and $\Delta_r G$ of cell reaction both are intensive properties
- C. E_{cell}° is an intensive property while $\Delta_r G$ of cell reaction is an extensive property.
- D. E_{cell}° is an extensive property while $\Delta_r G$ of cell reaction is an intensive property.

Answer: C



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12. Which of the following is wrong?

- A. Cathode rays have constant e/m ratio.
- B. e/m ratio of anode rays is not constant.
- C. e/m ratio of protons is not constant

D. e/m ratio of β -particles is constant.

Answer: C

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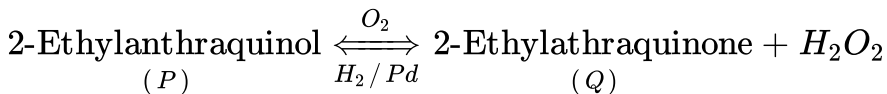
13. The central C-atom of a carbanion possesses

- A. septet of electrons
- B. octet of electrons
- C. duplet of electrons
- D. none of these

Answer: B

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14. Industrially, H_2O_2 is obtained by the following cyclic process:



Which one of the following properties is wrong about the mixture of organic solvents in which the reaction is carried out?

- A. It must resist oxidation
- B. It must be miscible with water.
- C. It must dissolve both (P) and (Q)
- D. It is generally a mixture of ester and hydrocarbon.

Answer: B

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15. The amount of water produced by the combustion of 16 g of methane is

A. 16 g

B. 36 g

C. 18 g

D. 32 g

Answer: B



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16. The order of heat of fusion of T_2 , D_2 and H_2 is

A. $T_2 > D_2 > H_2$

B. $H_2 > T_2 > D_2$

C. $D_2 > T_2 > H_2$

D. $D_2 = T_2 > H_2$

Answer: A



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17. The photochemical smog is essentially caused by presence by

- A. O_2 and O_3
- B. Oxides of nitrogen and hydrocarbons
- C. Oxides of sulphur and nitrogen
- D. O_2 and N_2 .

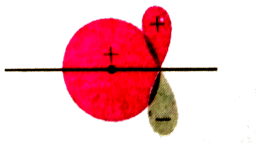
Answer: B



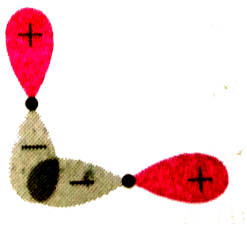
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18. Which of the following orbital overlapping is not possible according to VBT?

A.



B.



C.



D. All of these

Answer: D



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19. The reaction, $RC \equiv CR \xrightarrow[\text{Lindlar's catalyst}]{H_2}$ Gives the main product as

A. cis-alkene

B. trans-alkene

C. alkane

D. none of these

Answer: A

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20. Which statement is false?

A. Elements of VB group are transition elements.

B. elements of VA group are all metalloids

C. elements of IA and IIA groups are metals

D. element of IVA group are neither strongly electronegative nor strongly electropositive.

Answer: B

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21. All reactions involving chemical decomposition are

A. reversible

B. reversible and endothermic

C. exothermic

D. may be reversible or irreversible and endothermic or exothermic

Answer: D



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22. In the following question, a statement of assertion is followed by a statement of reason. Mark the correct choice.

Assertion: Simple distillation can help in separating a mixture of propan-1-ol (boiling point $97^{\circ}C$) and propanone (boiling point $56^{\circ}C$)

)

Reason: Liquids with a difference of more than $20^{\circ}C$ in their boiling points can be separated by simple distillation.

- A. both assertion and reason are true and reason is the correct explanation of assertion
- B. both assertion and reason are true but reason is not the correct explanation of assertion
- C. Assertion is true but reason is false.
- D. both assertion and reason are false.

Answer: A



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23. Which of the following is correct?

- A. van der waals radius of chlorine is bigger than nitrogen.

- B. covalent radius of nitrogen is bigger than chlorine
- C. van der waals radius of chlorine is smaller than nitrogen
- D. All are correct

Answer: A

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24. In covalent bond

- A. transfer of electrons takes place
- B. sharing of electrons takes place
- C. electrons are shared by only one atom
- D. none of these

Answer: B

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25. The compressibility of a gas is less than unity at STP. Therefore,

A. $V_m > 22.4L$

B. $V_m < 22.4L$

C. $V_m = 22.4L$

D. $V_m = 44.8L$

Answer: B

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26. Element $M + N_2 \xrightarrow{\Delta} \xrightarrow{H_2O} NH_3$ element M belonging to group

13 can be

A. B or Al

B. Ga or Al

C. B or Ga

D. In or Tl

Answer: A



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27. Select the correct statement. In the gas equation, $PV = nRT$

A. n is the number of molecules of a gas

B. n moles of the gas have a volume V

C. V denotes volume of one mole of the gas

D. P is the pressure of the gas when only one mole of gas is present.

Answer: B



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28. The solubility product of aluminium sulphate is given by the expression

A. $4s^3$

B. $6912s^7$

C. s^2

D. $108s^3$

Answer: D

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29. The IUPAC name of the compound, $\underset{\text{OH}}{\text{C}}\text{H}_2 - \underset{\text{NH}_2}{\text{C}}\text{H} - \text{COOH}$ is

A. 2-amino-3-hydroxypropanoic acid

B. 1-hydroxy-2-aminopropan-3-oic acid

C. 1-amino-2-hydroxypropanoic acid

D. 3-hydroxy-2-aminopropanoic acid.

Answer: A



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30. Calculate the uncertainty in the momentum of an electron if it is confined to a linear region of length 1×10^{-10} metre

A. $5.37 \times 10^{-27} \text{ kg ms}^{-1}$

B. $5.27 \times 10^{-27} \text{ g ms}^{-1}$

C. $5.37 \times 10^{-25} \text{ g ms}^{-1}$

D. $5.27 \times 10^{-25} \text{ kg ms}^{-1}$

Answer: D

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31. The second ionization enthalpy is

- A. smaller than the first ionization enthalpy
- B. salmost equal to the first ionizationn enthalpy
- C. smallerr than the third ionization enthalpy
- D. equal to the second electron gain enthalpy.

Answer: C

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32. IUPAC name of 4-iso-propyl-m-xylene is

- A. 1-iso-propyl-2,4-dimethylbenzene
- B. 4-iso-propyl-m-xylene

C. 4-iso-propyl-2,3-dimethylbenzene

D. 4-iso-propyl-3,5-dimethylbenzene.

Answer: A

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33. The positive value of ΔS indicates that

A. the system becomes less disordered

B. the system becomes more disordered

C. the system is in equilibrium position

D. the system tends to reach at at equilibrium position.

Answer: B

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34. Capillary action of the liquid can be explained on the basis of its

- A. resistance to flow
- B. surface tension
- C. heat of vaporisation
- D. refractive index

Answer: B



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35. Smoke is an example of

- A. gas dispersed in liquid
- B. gas dispersed in solid
- C. solid dispersed in gas
- D. solid dispersed in solid

Answer: C



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36. The first emission line in the atomic spectrum of hydrogen in the Balmer series appears at`

A. $9R / 400cm^{-1}$

B. $7R / 144cm^{-1}$

C. $3R / 4cm^{-1}$

D. $5R / 36cm^{-1}$

Answer: D



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37. The ratio of specific charge of a proton and an α -particle is

A. 2:1

B. 1:2

C. 1:4

D. 1:1

Answer: B



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38. Photochemical smog is ___in character while classical smog is ___in character.

A. oxidising, reducing

B. reducing, oxidising

C. oxidising, oxidising

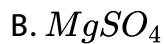
D. reducing, reducing

Answer: A



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39. Which of the following is sparingly soluble in water?



Answer: C



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40. Two members of a homologous series have different

- A. general formula
- B. molecular weights
- C. methods of preparation
- D. chemical properties.

Answer: B



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41. Free energy change for a reversible process is

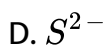
- A. > 0
- B. < 0
- C. equal to zero
- D. unpredictable

Answer: C



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42. Which of the following ions is smallest in size?



Answer: C



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43. The bond angle $H - O - H$ in ice is closest to



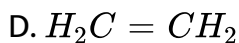
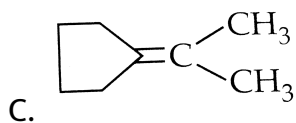
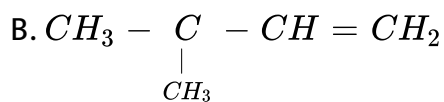
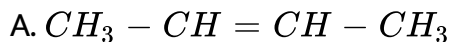
C. 90°

D. 109°

Answer: D

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44. Which of the following alkenes on ozonolysis gives a mixture of ketones only?



Answer: C



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