



CHEMISTRY

BOOKS - SURA CHEMISTRY (TAMIL ENGLISH)

SURAS. MODEL QUESTION PAPER - 2

Part A Answer All The Questions

1. Identify the incorrect statement about a compound.

A. A molecule cannot be separated into its constituent elements by physical methods of separation

B. A molecule of a compound has atoms of different elements

C. A compound retains the physical properties of its constituent element

D. The ratio of atoms of different elements in a compound is fixed

Answer: A::C::D



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2. Living the atmosphere of CO is dangerous because it

A. Combines with O_2 present inside to form CO_2

B. Reduces organic matter of tissues

C. Combines with haemoglobin and makes it incapable to absorb oxygen

D. Dries up the blood

Answer: C



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3. Match the List I with List II and select the correct answer using. The code given below the lists.

	List I		List II
<i>A</i>	High enthalpy of hydration	1	Cs
<i>B</i>	Most electropositive element	2	Li
<i>C</i>	Golden Yellow flame	3	Fr
<i>D</i>	Radioactiv	4	Na

A.

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
1	3	2	4

- B. $A \quad B \quad C \quad D$
4 3 1 2
- C. $A \quad B \quad C \quad D$
3 1 4 2
- D. $A \quad B \quad C \quad D$
2 1 4 3

Answer: A::B::C::D

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4. Assertion : Number of radial and angular nodes for 3p orbital are 1,1 respectively.

Reason : Number of radial and angular nodes depends only on principal quantum number.

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::B



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5. The molality of a solution containing 1.8g of glucose dissolved in 250g of water is

A. 0. 2 M

B. 0. 01 M

C. 0. 02 M

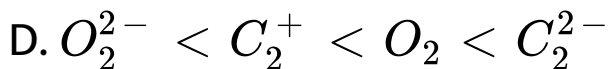
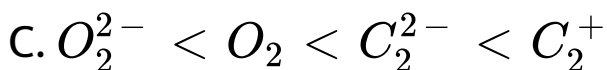
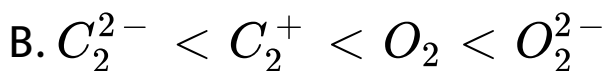
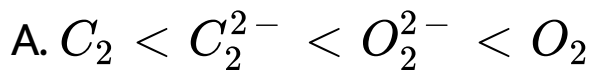
D. 0. 04 M

Answer: D



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6. Which of these represents the correct order of their increasing bond order.



Answer: B::C



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7. Assertion : Permanent hardness of water is removed by treatment with washing soda

Reason : Washing soda reacts with soluble calcium and magnesium chlorides and sulphates in hard water to form insoluble carbonates

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::B::C::D



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8. Match the List I with List II and select the correct answer using. The code given below the lists.

- A. $A \ B \ C \ D$
1 3 2 4
- B. $A \ B \ C \ D$
4 3 1 2
- C. $A \ B \ C \ D$
3 1 4 2
- D. $A \ B \ C \ D$
2 1 4 3

Answer: A::B::C::D



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9. The gaseous envelope around the earth is known as atmosphere. The region lying between an altitudes of 11.50 km is

A. Troposphere

B. Mesosphere

C. Thermosphere

D. Stratosphere

Answer: A



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10. The equilibrium constant for a reaction at room temperature is K_1 and that at 700 K is K_2 . If $K_1 > K_2$, then

- A. The forward reaction is exothermic
- B. The forward reaction is endothermic
- C. The reaction does not attain equilibrium
- D. The reverse reaction is exothermic

Answer: A::C::D



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11. Identify the wrong statement.

A. Amongst the isoelectronic species,
smaller the positive charge on cation,
smaller is the ionic radius

B. Amongst isoelectronic species greater the
negative charge on the anion larger is
the ionic radius

C. Atomic radius of the elements increases
as one moves down the first group of
the periodic table

D. Atomic radius of the elements decreases as one moves across from left to right in the 2nd period of the periodic table .

Answer: A::B::C::D



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12. Match the List I with List II and select the answer using the code given below the list .

List I

List II

A Pressure

2 Intensive property

B Number of moles

3 Path function

C Density

3 Extensive property

D Work

4 State function

A.

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
1	2	3	4

B.

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
4	3	1	2

C.

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
4	3	2	1

D.

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
3	4	1	2

Answer: A::B::C::D



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13. The isomer of ethanol is _____

A. acetaldehyde

B. dimethyl ether

C. acetone

D. methyl carbinol

Answer: D



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14. Homolytic fission of covalent bond leads to the formation of

A. electrophile

B. nucleophile

C. carbo cation

D. free radical

Answer: A::C::D



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Part B Answer Six Questions Question No 18 Is Compulsory Answer Any Five From The Remaining

1. Mention any two biological effects of D_2O .

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2. What is K_H in $P_{\text{solute}} = K_H X_{\text{solute}}$? On what does the value of K_H depend ?

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3. BeSO_4 is soluble in water whereas BaSO_4 is not. Why ?



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4. Describe the mechanism of Nitration of benzene.



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5. Define periodicity.





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6. Write the Schrodinger wave equation.



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7. For a given reaction, at a particular temperature, the equilibrium constant has value. Is the value of Q also constant ? Explain.



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8. The percentage of all the elements present in a compound is 95 . What does it indicate ?



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9. Define optical isomerism.



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Part C Answer Six Questions Question No 27 Is Compulsory Answer Any Five From The Remaining

1. The reactant which is entirely consumed in reaction is known as limiting reagent. In the reaction $2A + 4B \rightarrow 3C + 4D$, when 5 moles of A react with 6 moles of B , then

(i) Which is the limiting reagent

(ii) Calculate the amount of C formed.



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2. What are the number of bond pairs and lone pairs of electrons of N-atom in NO_3^- ?





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3. List the characteristics of internal energy.



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4. Explain the preparation of sodium fusion extract .



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5. Explain the role of H_2O_2 in green chemistry.

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6. How will you store H_2O_2 ?

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7. Why H_2O_2 is kept away from dust ?

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8. Given examples for the following types of organic reactions

β - elimination



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9. Given examples for the following types of organic reactions

electrophilic substitution .



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10. Which is largest in size Cu^+ , Cu^{2+} or Cu and why?



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11. Which element in periodic table has highest ionisation energy. (IE) ?



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12. Which element is more metallic Mg or Al and why?

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13. State Henry's law .

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14. How does classical smog differ from photochemical smog ?



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Part D Answer All Five Questions

1. Write down the postulates of Bohr atom model.



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2. Why rocksalt is harder than metallic sodium?



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3. Represent the bond formation in



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4. KCl in water deviates from ideal behaviour-
why?



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5. Define solution. Explain with an example.



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6. For a gaseous mixture of $2.41g$ of helium and $2.79g$ of neon in an evacuated $1.04dm^3$ container at 298 K Calculate the partial pressure of each gas and hence find the total pressure of the mixture.



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7. State the first law of thermodynamics.



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8. Enthalpy of neutralization is always a constant when a strong acid is neutralized by a strong base: account for the statement.



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9. Define hydrogen bond and its types .



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10. Why does lime water turn milky when CO_2 is bubbled through it ?



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11. Dihydrogen reacts with dioxygen (O_2) to form water. Write the name and formula of the product when the isotope of hydrogen which has one proton and one neutron in its nucleus

is treated with oxygen. Will the reactivity of both the isotopes be the same towards oxygen ? Justify your answer.



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12. How is acid rain formed ? Explain its effect.



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13. What happens when ethylene is passed through cold dilute alkaline potassium

permanganate.



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14. Explain Markovnikoff's rule with suitable example .



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15. Write note on decomposition reaction .



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