



CHEMISTRY

BOOKS - ACCURATE PUBLICATION

MODEL TEST PAPER-8

Section A Mcq

1. 18 g of glucose is dissolved in 1 kg of water. At what temperature will the solution boil ? (K_b for water is 0.52 K kg mol⁻¹)

A. $99.052^{\,\circ}\,C$

B. $00^{\circ}C$

C. $100.052^{\,\circ}\,C$

D. $99^{\,\circ}\,C$

Answer:

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2. If limiting molar conductivity of Ca^{2+} and Cl^{-} are 119.0 and 76.3 S cm^2mol^{-1} , then the value of limiting molar conductivity of $CaCl_2$ will be :

A. $195.3 Scm^2 mol^{-1}$

B. $271.6Scm^2mol^{-1}$

C. $43.3Scm^2mol^{-1}$

D. $314.3Scm^2mol^{-1}$

Answer:



3. Which chemical is used for clearing snow on the

roads ?

A. NaCl

B. $CaCl_2$

C. both (a) and (b)

D. none

Answer:

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4. Dissolution process follows which principle ?

A. Hoffman principle

B. quantum principle

C. le chatelier's principle

D. atomic principle



5. The molal elevation constant depends upon

A. nature of solute

B. nature of the solvent

C. vapour pressure of the solution

D. enthalpy change



6. Molecular Nitrogen (N \equiv N) is very little reactive because it:

A. is highly electronegative

B. has very small atomic size and small bond

length.

C. has lone pair of electrons

D. has no d-orbital

Answer:

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7. The test used to distinguish alcohols from one

another is known as

A. Hinsberg's test

B. 2, 4-DNP test

C. lodoform test

D. lucas test



8. Which of the following amines gives Carbylamine reaction?

A. $C_2H_5NH_2$

 $\mathsf{B.}\left(C_{2}H_{5}\right)_{2}NH$

 $\mathsf{C}.\,(C_2H_5)_3N$

D. $CH_3NHC_2H_5$



9. Which of the following lanthanide oxide is used for

making coloured goggles ?

A. Gadolinium oxide

B. Cerium oxide

C. Neodymium oxide

D. none of these

Answer:



10. A ligand can also be regarded as

A. Lewis acid

B. Lewis base

C. Bronsted acid

D. Bronsted base

Answer:

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11. Give IUPAC name of complex compound $[Co(NH_3)_4(H_2O)Br](NO_3)_2.$

A. bromidoaquotetraamminecobalt (III) nitrate

B. bromidooaquotetraamminocobalt (III) nitrate

C. bromidooaquatetraamminecobalt (III) nitrate

D. tetraammineaquabromidocobalt (III) nitrate

Answer:



12. When a mixture of calcium acetate and calcium

formate is distilled, the product formed is:

A. Formaldehyde

B. Acetaldehyde

C. Acetone

D. None of these

Answer:



13. CH_3CHO and $C_6H_5CH_2CHO$ can be

distinguised chemically by :

A. Benedict's test

B. lodoform test

C. Tollen's reagent test.

D. Fehling's solution test

Answer:

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14. Which of the following reactions will not result in

the formation of C - C bond ?

A. Cannizzaro reaction

B. Wurtz reaction

C. Reimer-Tiemann Reaction

D. Friedal Crafts Reaction



15. The general formula Cn $H_2 n O_2$ could be for open

chain

A. Diketones

B. Carboxylic acids

C. Diols

D. Dialdehydes





16. Which of the following-statement is not correct?

A. Methylamine is more basic than NH_3

B. Amines form hydrogen bonds

C. Ethylamine has higher boiling point than

propane

D. Dimethylamine is less basic than methylamine



17. The chemical change in DNA molecule that could lead to synthesis of protein with an altered amino acid sequence is called

A. replication

B. lipid formation

C. cellular membrane

D. mutation



18. In DNA, the complimentary bases are :

A. adenine and thymine, guanine and cytosine

B. adenine and thymine, guanine and uracil

C. adenine and guanine, thymine and cytosine

D. uracil and adenine, cytosine and guanine

Answer:



Section A Passage

1. Thomas Graham in 1861, during his work on diffusion found that certain substances such as gelatin, albumin, glue, etc. Diffused at very low rate and were called colloids. The colloid particles have the size in the range of 1 to 100nm consisting of dispersed phase and dispersion ,(medium. The dispersed phase or dispersion medium may be solid, liquid 6r even a gas. Depending upon the nature of dispersion medium or dispersed phase, 8 types of systems are possible except for a gas dispersed in another gas because the gases are completely miscible with each other. The substances which have strong interaction with the dispersion medium are called lyophilic colloids while those which do not

pass into collofdalstate readily are called lyophobic colloids. Lyophobic sols are much less stable and are irreversible.

What is the size of colloid particles?

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How many types of systems are possible depending upon the nature of dispersion medium?



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What is dispersed phase and dispersion medium ?

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What are colloid particles ?

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Which type of colloids are less stable ?

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Section A True False

1. Catalytic reduction of carbylamines always gives

primary amines.



2. Benzaldehyde forms addition product with sodium

bisulphite but acetopheuone does not.



4. Acetone reacts with methyl magnesium bromide

followed by hydrolysis to give secondary alcohols.

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5. Alpha amino acid shows basic character due to $-COO^-$ group and acidic character due to $-NH^{3+}$ group.

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Section B Short Answer

1. Chemistry of all lanthanoids is so identical. Explain.

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Ambidentate ligand



3. Explain with two examples the following

Coordination sphere.

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4. Give IUPAC names

 $\big[Co(NH_3)_5NO_2\big]Cl_2$





8. Give the structure and basicity of H_3PO_4 .

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9. Distinguish between order and the molecularity of

a reaction.



10. Prove that $t_{99.9\,\%}\,/\,t_{50}\,\%\,=10$ for a first order

reaction?

11. The reaction $2NO_2O_5
ightarrow 4NO_2 + O_2$ forms NO_2 at the rate of 0.0072 mol $L^{-1}s^{-1}$ after a certain time.

What is the rate of change of $[O_2]$ at this time?

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14. Calculate the mass of a non-volatile solute (molar mass 40g mol^{-1}) which should be dissolved in 114g octane to reduce its vapour pressure to 80%.

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15. Dissolving 120g of urea (mol.wt 60) in 1000g of water gave a solution of density 1.15g/ml. The molarity of solution is:

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16. H_2S is a gas while H_2O is liquid at room temperature? Why?

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17. Balance the chemical equation : FeSO4 + NaOH \rightarrow

Fe(OH)2 + Na2SO4



18. Comment on nature of two S-O bond formed in SO_2 molecule. Are the two S-O bonds in this molecule equal ?

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Section C Long Answer Questions

1. Account for the following: Why the acid strengths of halogen acids increase in the order: HF < HCl < Hl?



order of acidic strength.



3. How does phenol react with

Zinc dust.



4. How does phenol react with :

Acid anhydride ?



5. Give two points of difference between a laboratory

thermometer and clinical thermometer?

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6. How does phenol react with:

Ammonia ?

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7. Explain coupling reaction of phenols.

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8. Explain the following reactions:

Diazotisation reaction.

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9. Explain the following reactions :

Kolbe's reaction.



10. The reaction $2A + B + C \rightarrow D + 2E$ is of first order with respect to A and of second order with respect to B and is of zero order with respect to C Write down the rate law for the reaction

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11. Give three points of similarities between a clinical

thermometer and a laboratory thermometer?

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12. A substance reacts according to the law of first order reaction the velocity constant of the reaction is 1.0×10^{-2} per sec. If initial conc. of the substance is 0.1 M

Find out the initial rate

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13. A substance reacts according to the law of first order reaction the velocity constant of the reaction is $1.0 \times 10^{-2} \sec^{-1}$. Ifinitial conc. of the substance is 0.1 M

Find ont the rate after 1 min.





14. Calculate e.m.f. of following cell at 298 K

 $Fe(s)\,/\,Fe^{2\,+}\,(0.001M)\,/\,H^{\,+}\,(1M)\,/\,H_2(s)(1{
m bar})1Pt(s)$

$$E^0_{Fe^{2+}\,/\,Fe}=\,-\,0.44V$$

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Section D Long Answer Questions Type li

1. Explain the following reactions:

Balz Schiemann reaction.



2. _____is used in the clinical thermometer and laboratory thermometer to measure the

temperature.



3. Write Wurtz reaction.



4. Write down following name reaction :

Hunsdiecker reaction



7. Give the order of reactivity of $1^\circ, 2^\circ$ and 3° alkyl

halide towards SN^1 mechanism.



9. Why there is jump of 14 atomic numbers from La

(57) to Hf (72)?



10. Give two examples of conductors and insulators

of heat?



11. Give the cause of Lanthanide Contraction.

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