CHEMISTRY

BOOKS - FULL MARKS CHEMISTRY (TAMIL ENGLISH)

SAMPLE PAPER - 14

Part I Answer All The Questions Choose The Most Suitable Answer From The Given Four Alternatives And Write The Option Code And The Corresponding Answer

1. Which one of the following reaction represents calcination ?

A. $2Zn + O_2 \rightarrow 2ZnO$

B. $2ZnS + 3O_2 \rightarrow 2ZnO + 2SO_2$

C. $MgCO_3 \rightarrow MgO + CO_2$

D. Both (a) and (c)

Answer: C

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2. Match the following :

(i) Graphene	(a) Honeycomb crystal
(ii) Diamond	(b) Aromatic character
(iii) Fullerene	(c) Lubricant
(iv) Graphite	(d) Very hard

A.

B.

C.

D.

Answer: (i)-(c), (ii)-(d), (iii)-(b), (iv)-(a)

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3. The basicity of pyrophosphorous acid $(H_4P_2O_5)$ is

A. 4

B. 2

C. 3

D. 5

Answer: B

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4. The oxidation state of Chromium in CrO_4^{2-} and in $Cr_2O_7^{2-}$ are

..... .

A. $+3, \ +6$

B. $+7, \ +4$

C. $+6, \ +6$

D. $+4, \ +6$

Answer: C

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5. Consider the following statements.

(i) VB theory does not explain the colour of the complex

(ii) VB theory does not explain the magnetic properties

(iii) VB theory does not provide a quantitative explanation about inner orbital complexes

Which of the above statements is/are not correct ?

A. i only

B. i and ii

C. iii only

D. ii only

Answer: C

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6. CsCl has bcc arrangement, its unit cell edge length is 400pm, its inter atomic distance is

A. 400 pm

B. 800 pm

C. $\sqrt{3} \times 100$ pm

D. $\left(\frac{\sqrt{3}}{2}\right) \times 400$ pm

Answer: D

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7. Which one of the following is a slow reaction ?

A. Rusting of iron

B. Combustion of carbon

C. Reaction between $BaCl_2$ and dil. H_2SO_4

D. Reaction between acidified $K_2Cr_2O_7$ with NaCl

Answer: A

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8. pH of saturated solution of $Ca(OH)_2$ is 9. The solubility product (K_{sp}) of $Ca(OH)_2$

A. 0.5×10^{-15}

B. 0.25×10^{-10}

C. 0.125×10^{-15}

D. 0.5×10^{-10}

Answer: A

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9. A gas X at 1 atm is bubble through a solution containing a mixture of $1MY^-$ and $1MZ^-$ at $25^\circ C$. If the reduction potential of $Z > Y > X$, then

A. Y will oxidize X and not Z

B. Y will oxidize Z and not X

C. Y will oxidize both X and Z

D. Y will reduce both X and Z

Answer: A

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10. Identify the gas which is readily adsorbed by activated charcoal ?

A. N_2

B. SO_2

C. H_2

D. O_2

Answer: B

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11. Assertion: Phenol is more reactive than benzene towards electrophilic substitution reaction.

Reason: In the case of phenol, the intermediate arenium ion is more stabilized by resonance.

A. if both assertion and reason are true and reason is the correct explanation of assertion.

B. if 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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12. Which is one the correct order of strength of carboxylic acid ?

A.

$$H-\overset{O}{\overset{\|}{C}}-OH > CH_3-\overset{O}{\overset{\|}{C}}-OH > CH_3-CH_2-\overset{O}{\overset{\|}{C}}-OH$$

B.

$$CH_3-\overset{O}{\overset{\|}{C}}-OH < H-\overset{O}{\overset{\|}{C}}-OH > CH_3-CH_2-\overset{O}{\overset{\|}{C}}-OH$$

C.

$$CH_3-\overset{O}{\overset{\|}{C}}-OH > CH_3-CH_2-\overset{O}{\overset{\|}{C}}-OH > H-\overset{O}{\overset{\|}{C}}-OH$$

D.

$$CH_3-CH_2-\overset{O}{\overset{\|}{C}}-OH > H-\overset{O}{\overset{\|}{C}}-OH > CH_3-\overset{O}{\overset{\|}{C}}-OH$$

Answer: A

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13. The method by which aniline cannot be prepared is

A. degradation of benzamide with $Br_2 / NaOH$

B. potassium salt of phthalimide treated with chlorobenzene followed by hydrolysis with aqueous NaOH solution.

C. Hydrolysis of phenylcyanide with acidic solution

D. reduction of nitrobenzene by Sn/HCl

Answer: B

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14. The central dogma of molecular genetics states that the genetic information flows from

A. Amino acids Protein DNA

B. DNA Carbohydrates Proteins

C. DNA RNA Proteins

D. DNA RNA Carbohydrates

Answer: C

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15. Non stick cook wares generally have a coating of a polymer, whose monomer is

A. ethane

B. prop-2-enenitrile

C. chloroethene

D. 1,1,2,2-tetrafluoroethane

Answer: D

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Part Ii Answer Any Six Questions Question No 23 Is Compulsory

1. Give the basic requirement for vapour phase refining.

A.

B.

C.

D.

Answer:

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2. Write a note on metallic nature of p-block elements.

A.

B.

C.

D.

Answer:

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3. d-block elements are called transition elements. Justify this statement.

A.

B.

C.

D.

Answer:

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4. Sodium metal crystallizes in bcc structure with the edge length of the unit cell $4.3 \times 10^{-8} cm$. Calculate the radius of sodium atom.

A.

B.

C.

D.

Answer:

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5. A reaction between ammonia and boron trifluoride is given below $\dot{\ddot{N}}H_3 + BF_3 \rightarrow H_3N:BF_3$. Identify the acid and base in the reaction. Which theory explain it ?

A.

B.

C.

D.

Answer:

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6. Define anode and cathode.

A.

B.

C.

D.

Answer:

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7. Suggest a suitable reagent to prepare secondary alcohol with identical group using Grignard reagent.

A.

B.

C.

D.

Answer:

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8. Nitro benzene cannot be prepared from Bromo benzene by direct nitration. Give reason.

A.

B.

C.

D.

Answer:

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9. What are sugar substituents? Give two examples.

A.

B.

C.

D.

Answer:

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Part Iii Answer Any Six Question Question No 31 Is Compulsory

1. Give the uses of boron.

A.

B.

C.

D.

Answer:

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2. Give the oxidation state of halogen in the following.

(a) OF_2 (b) O_2F_2 (c) Cl_2O_3 (d) I_2O_4

A.

B.

C.

D.

Answer:

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3. Explain optical isomerism in coordination compounds with an example.

A.

B.

C.

D.

Answer:

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4. Write the differences between rate and rate constant of a reaction.

A.

B.

C.

D.

Answer:

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5. Explain Buffer action with suitable example.

A.

B.

C.

D.

Answer:

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6. How would you prepare colloids of noble metals ?

A.

B.

C.

D.

Answer:

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7. Explain why p-hydroxybenzaldehyde is a high melting solid?

A.

B.

C.

D.

Answer:

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8. Prove that sucrose is (i) invert sugar (ii) non-reducing sugar.

A.

B.

C.

D.

Answer:

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9. What are drugs? How are they classified.

A.

B.

C.

D.

Answer:

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Part Iv Answer All The Questions

1. (i) Explain zone refining process with an example using the Ellingham diagram.

(ii) Explain Auto reduction.

A.

B.

C.

D.

Answer:

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2. (i) Give the uses of argon.

(ii) Discuss the Commercial method to prepare Nitric acid. [OR]

How will you prepare nitric acid by Ostwald's process ?

A.

B.

C.

D.

Answer:

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3. (i) Which is stronger reducing agent Cr^{2+} or Fe^{2+} ?

(ii) Explain about the oxidation state of Lanthanoids.

A.

B.

C.

D.

Answer:

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4. (i) $[CuCl_4]^{2-}$ exists while $[CuI_4]^{2-}$ does not exist why ?

(ii) Using crystal field theory, explain the colour of the coordination compound.

A.

B.

C.

D.

Answer:

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5. (i) Experiment shows that Nickel oxide has the formula $Ni_{0.98}O_{1.00}$.

What fraction of Nickel exists as of Ni^{2+} and Ni^{3+} ions?

(ii) Why do solids have a definite volume ?

A.

B.

C.

D.

Answer:

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6. (i) Describe the electrolysis of molten NaCl using inert electrodes.

(ii) What are the values of A and B in Debye Huckel and Onsagar equation ?

A.

B.

C.

D.

Answer:

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7. (i) What is the difference between homogenous and heterogenous catalysis ?

(ii) What are emulsions ? What are their different types ?

Give one example of each type.

A.

B.

C.

D.

Answer:

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8. (i) Ether bottle should not be kept open. Why ?

(ii) Draw the structures and write the IUPAC name of the following compounds.

1. Benzyl alcohol 2. Allyl alcohol 3. Cyclohexyl alcohol

A.

B.

C.

D.

Answer:

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9. (i) Identify A,B,C and D

$$CH_3 - NO_2 \xrightarrow{LiAlH_4} A \xrightarrow{2CH_3CH_2Br} B \xrightarrow{H_2SO_4} C$$

(ii) How would you get iodo benzene from benzene diazonium chloride.

A.

B.

C.

D.

Answer:

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10. (i) Write the structure of alpha-D(+) glucopyranose.

(ii) What happens when fructose is treated with sodium amalgam and water ?

A.

B.

C.

D.

Answer:

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