



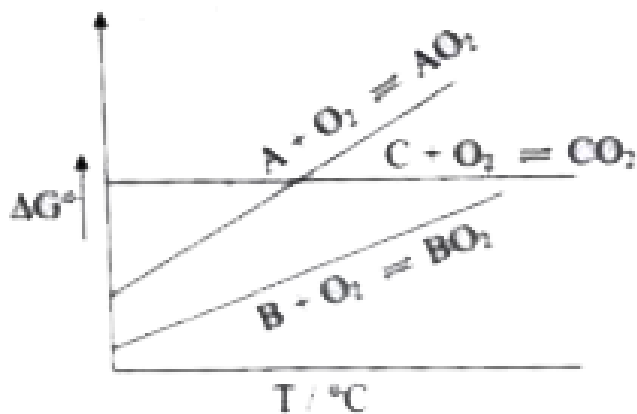
CHEMISTRY

BOOKS - FULL MARKS CHEMISTRY (TAMIL ENGLISH)

SAMPLE PAPER - 20 (UNSOLVED)

Part I

1. Observe the diagram.



Which one of the following statement is correct?

A. B can reduce AO_2

B. A can reduce BO_2

C. B cant reduce AO_2

D. AO_2 is thermodynamically more stable than BO_2

Answer: A

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2. Comparing Al , B , Ga and Tl , which one exhibits +1 oxidation state?

A. Al

B. B

C. Ga

D. Tl

Answer: D

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3. Why ammonia is extremely soluble in water?

- A. Due to formation of intra - molecular H - bonding with water.
- B. Due to formation of inter - molecular H - bonding with water.
- C. Due to its lower density than air.
- D. Due to its higher density than air.

Answer: B



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4. Find the odd one out.

- A. La
- B. Pr
- C. An

D. Lu

Answer: C

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5. Consider the following statements.

- (i) Complexes of central metal atom such as Cu^+ , Zn^{2+} are coloured
- (ii) Most of the transition metal complexes are colourless
- (iii) Negative CFSE value indicates that low spin complex is favoured

Which of the above statements is/are correct?

A. i and ii

B. iii only

C. ii only

D. i, ii only iii

Answer: B

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6. In a solid atom M occupies ccp lattice and $\left(\frac{1}{3}\right)$ of tetrahedral voids are occupied by atom N, find the formula of solid formed by M and N .

- A. MN
- B. M_3N
- C. MN_3
- D. M_3N_2

Answer: D



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7. Match the list I and II using the code given below the list.

List - I

- A. Acid hydrolysis of an ester
- B. Decomposition of H_2O_2
- C. Decomposition of CH_3CHO
- D. Substitution of methyl bromide with aqueous KOH.

List - II

- 1. Fractional order
- 2. second order reaction
- 3. Pseudo first order
- 4. First order reaction

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

Answer: A

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8. The addition of pure solid sodium carbonate to pure water causes

..... .

- A. an increase in hydronium ion concentration
- B. an increase in alkalinity
- C. No change in acidity
- D. A decrease in hydroxide ion

Answer: B

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9. Assertion (A) : If an iron rod is dipped in $CuSO_4$ solution, then blue colour of the solution turns red.

Reason (R) : Iron is more reactive than copper and so iron displaces copper from $CuSO_4$ solution.

- A. Both A and R are correct and R is the correct explanation of A
- B. Both A and R are wrong
- C. A is correct but R is wrong
- D. A is wrong but R is correct

Answer: A

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10. Adsorption of a gas on solid metal surface is spontaneous and exothermic, then

A. ΔH increases

B. ΔS increases

C. ΔG increases

D. ΔS decreases

Answer: D

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11. Which one of the strongest acid?

A. 2 - nitrophenol

B. 4 - chlorophenol

C. 4 - nitrophenol

D. 3 - nitrophenol

Answer: C

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12. What will be the product formed when ethanal is treated with 2 equivalent of methanol?

- A. 1, 1 - dimethoxy methane
- B. 1, 2 - dimethoxy ethane
- C. 1, 1 - dimethoxy ethane
- D. 1, 1 - diethoxy ethane

Answer: C



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13. The reducing agent used in mendius reaction is

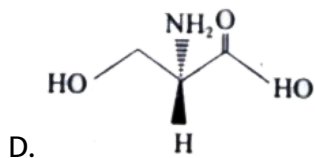
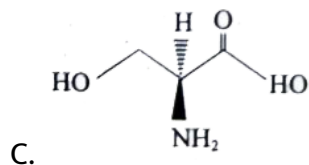
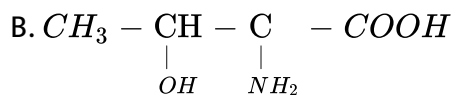
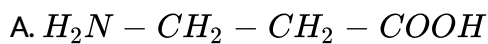
- A. H_2 / Ni
- B. $LiAlH_4$
- C. Na / C_2H_5OH

D. Sn/HCl

Answer: C

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14. Among the following L-serine is



Answer: C

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15. Which one of the following is used as a substitute of wool for making blankets, sweaters?

A. orlon

B. terylene

C. polyester

D. nylon

Answer: A

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Part II

1. What are roasting and calcination?

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2. Define allotropism and mention the allotropes of sulphur.

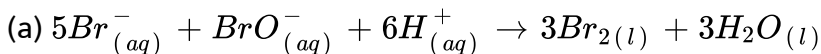
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3. Draw the structure of the following compounds.

(a) Sulphuric acid (b) Marshall's acid.

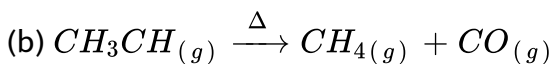
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4. What is the order with respect to each of the reactant and overall order of the following reactions ?



The experimental rate law is

$$\text{Rate} = k[Br^-][BrO_3^-][H^+]^2$$



the experimental rate law is

$$\text{Rate} = k[CH_3CHO]^{\frac{3}{2}}$$

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5. Prove that $1F = 96500C$.

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6. Mention the uses of Brownian movement.

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7. Arrange the following in the increasing order of their boiling point and give a reason for your ordering :

Propan -1-ol, propan - 1, 2, 3 - triol, propan -1, 3 - diol, propan - 2- ol

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8. How will you prepare benzoic acid using Grignard reagent.

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9. Classify the following into monosaccharides, , oligosaccharides and polysaccharides

i) Starch

ii) fructose

iii) sucrose

iv) lactose

v) maltose

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Part Iii

1. How will you prepare chlorine in the laboratory ?

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2. A zero order reaction is 20% complete in 20 minutes. Calculate the value of the rate constant. In what time will the reaction be 80% complete ?

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3. Which are the suitable positions for electrophilic substitution reaction occurs at phenol and explain why it occurs at those positions?

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4. Why most of the carboxylic acid exist as a dimer?

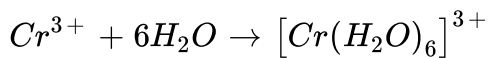
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5. Differentiate amylose and amylopectin

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Part IV

1. (b) (i) Identify the Lewis acid and the Lewis base in the following reactions.



(ii) Define buffer capacity and buffer index.



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