



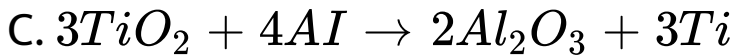
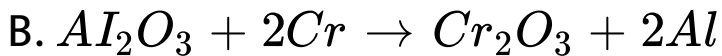
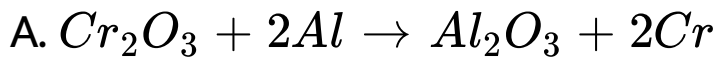
CHEMISTRY

BOOKS - SURA CHEMISTRY (TAMIL ENGLISH)

MODEL QUESTION PAPER - 2

Part I

1. Which of the following reduction is not thermodynamically feasible ?



D. None of these

Answer: B



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2. The compound that is used in nuclear reactors as protective shields and control rods is

A. Metal borides

B. Metal oxides

C. Metal carbonates

D. Metal carbide

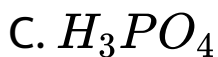
Answer: A



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3. On hydrolysis PCl_3 gives

A. H_3PO_3



Answer: A



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4. Which one of the following statements related to lanthanons is incorrect ?

A. Europium shows + 2 oxidation state.

B. The basicity decreases as the ionic radius decrease from Pr to Lu.

C. All the lanthanons are much more reactive than aluminium.

D. Ce^{4+} solutions widely used as oxidising agents in volumetric analysis .

Answer: C



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5. IUPAC name of the complex $K_3[Al(C_2O_4)_3]$ is

- A. potassiumtrioxalatoaluminium(III)
- B. Potassiumtrioxalatoaluminate(II)
- C. Potassiumtrioxalatoaluminate(III)
- D. Potassiumtrioxalatoaluminate (III)

Answer: D



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6. The yellow coloured in NaCl crystal is due to

A. excitation of electrons in F centres

B. reflection of light from Cl^- ion on the surface

C. refraction of light from Na^+ ion

D. all of the above

Answer: A



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7. Assertion : rate of reaction doubles when the concentration of the reactant is doubles if it is a first order reaction.

Reason : rate constant also doubles

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: C



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8. What is the PH of the resulting solutions when equal volumes of 0.1 M NaOH and 0.01M HCl are mixed?

A. 2

B. 3

C. 7

D. 12.65

Answer: D



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9. Among the following cells

i) Leclanche cell

II) Nickel - Cadmium cell

(iii) Lead storage battery

(iv) Mercury cell

Primary cells are

A. I and IV

B. I and III

C. III and IV

D. II and III

Answer: A



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10. match the following



A. iv , I, ii, iii

B. I,ii,iv,iii

C. ii,iii,iv,i

D. iii,iv,ii,i

Answer: A



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12. The formation of cyanohydrin from acetone is an example of

- A. nucleophilic substitution
- B. electrophilic substitution
- C. electrophilic addition
- D. nucleophilic addition

Answer: D



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13. $C_5H_{13}N$ reacts with HNO_2 to give an optically active compound - The compound is

- A. pentan - 1 - amine
- B. pentan -2- amine
- C. N,N - dimethylpropan -2- amine
- D. N-methylbutan -2- amine

Answer: B



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14. Which of the following statement is correct

A. Ovalbumin is a simple food reserve is
egg- white

B. blood proteins thrombin and fibrinogen
are involved in blood clotting

C. Denaturation makes protein more active

D. Insulin maintains the sugar level of in
the human body .

Answer: C



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15. Which one of the following is a biodegradable polymer?

A. HDPE

B. PVC

C. Nylon - 6

D. PHBV

Answer: D



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Part II

1. Give the uses of Borax.



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2. Which is more stable ? Fe^{3+} or Fe^{2+} - explain .



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3. For a reaction $x + y + z \rightarrow$ products the rate law is given by rate $k = [x]^{\frac{3}{2}} [y]^{\frac{1}{2}}$ what is the overall order of the reaction and what is the order of the reaction with respect to z.



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4. What is crystal field splitting energy ?



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5. How is phenol prepared from

(i) chloro benzene , (ii) isopropyl benzene



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6. Write short notes on Carbylamine reaction .



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7. Give two difference between Hormones and vitamins.



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8. What are antibiotics ?



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9. The concentration of hydroxide ion in a water sample is found to be $2.5 \times 10^{-6} M$. Identify the nature of the solution.



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1. CO is a reducing agent. Justify with an example.



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2. What are actinide ? Give three example .



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3. Write the oxidation state, coordination number, natures of ligand magnetic property and electronic configuration in octahedral crystal field for the complex $K_4[Mn(CN)_6]$.



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4. Write a note on sacrificial protection .



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5. Explain Kolbe's reaction .



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6. Write down the possible isomers of the $C_4H_9NO_2$ give their IUPAC names.



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7. What are the functions of lipids in living organism ?



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8. What are food preservatives ?



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9. The activation energy of a reaction is $225 \text{ K cal mol}^{-1}$ and the value of rate constant at 40° C is $1.8 \times 10^{-5} \text{ s}^{-1}$. Calculate the frequency factor, A.



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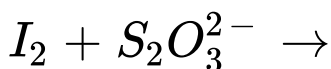
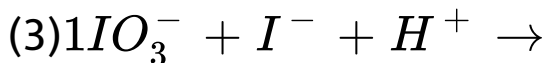
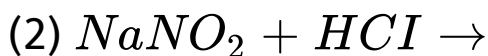
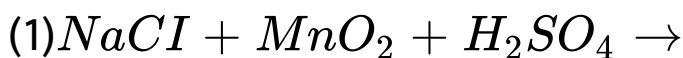
Part IV

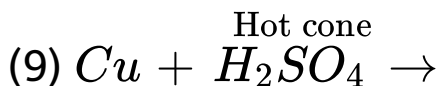
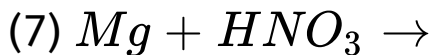
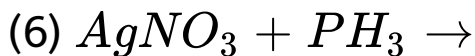
1. Describe the structure of diborane .



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2. Complete the following reactions





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3. Compare the ionization enthalpies of first series of the transition elements.



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4. Calculate the percentage efficiency of packing in case of body centered cubic crystal.



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5. Predict the major product, when 2-methyl but-2-ene is converted into an alcohol in each of the following methods.

(i) Acid catalysed hydration.

(ii) Hydroboration

(iii) Hydroxylation using Bayer's reagent.



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6. The conductivity of a 0.01 M solution of a 1 : 1 weak electrolyte at 298 K is $1.5 \times 10^{-4} \text{Scm}^{-1}$

(i) Molar conductivity of the solution

(ii) degree of dissociation and dissociation constant of the weak electrolyte

Given that $\lambda_{\text{cation}}^{\circ} = 248.2 \text{Scm}^2 \text{mol}^{-1}$

$\lambda_{\text{anion}}^{\circ} = 51.8 \text{Scm}^2 \text{mol}^{-1}$



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