

AGA KHAN UNIVERSITY EXAMINATION BOARD

SECONDARY SCHOOL CERTIFICATE

CLASS X EXAMINATION

MAY 2013

Chemistry Paper I

Time: 35 minutes Marks: 25

INSTRUCTIONS

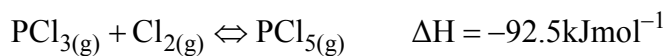
1. Read each question carefully.
2. Answer the questions on the separate answer sheet provided. DO NOT write your answers on the question paper.
3. There are 100 answer numbers on the answer sheet. Use answer numbers 1 to 25 only.
4. In each question there are four choices A, B, C, D. Choose ONE. On the answer grid black out the circle for your choice with a pencil as shown below.

Correct Way		Incorrect Ways	
1		1	
		2	
		3	
		4	

Candidate's Signature

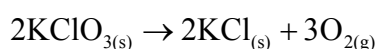
5. If you want to change your answer, ERASE the first answer completely with a rubber, before blacking out a new circle.
6. DO NOT write anything in the answer grid. The computer only records what is in the circles.
7. You may use a simple calculator if you wish.

1. Which of the following conditions will increase the yield of phosphorus pentachloride (PCl_5) in the given reaction?



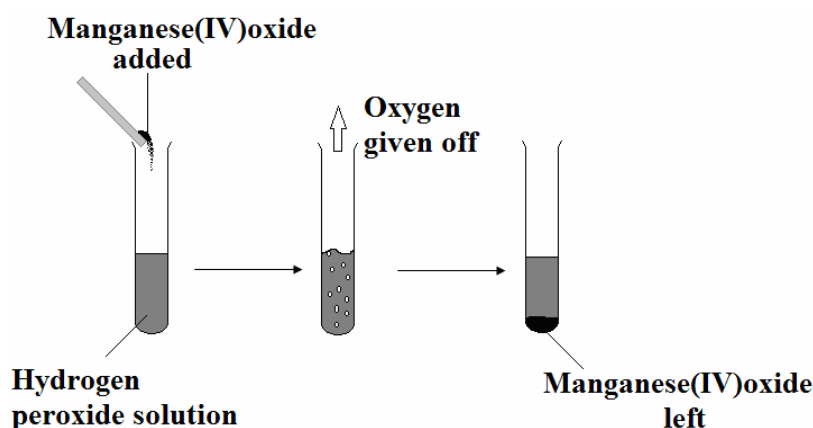
	Temperature	Pressure	Concentration of reactants
A	High	High	Low
B	Low	High	High
C	High	Low	Low
D	Low	Low	High

2. Which of the following options is correct about the given endothermic reaction?



	Temperature of the system	Reaction
A	Increases	Takes in energy
B	Decreases	Takes in energy
C	Increases	Gives out energy
D	Decreases	Gives out energy

3. Hydrogen peroxide solution decomposes very slowly at room temperature. However, when manganese(IV)oxide is added, bubbles of oxygen gas are produced very quickly and the mixture warms up. Which of the following is TRUE about manganese(IV)oxide and the type of reaction?



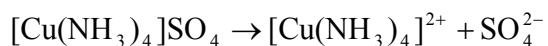
	Manganese (IV) oxide	Type of reaction
A	Solvent	Addition
B	Product	Combustion
C	Catalyst	Exothermic
D	Reactant	Decomposition

4. All of the following properties are of acids EXCEPT that they

- A. react with alkalis to form salt and water.
- B. react with metals to produce hydrogen.
- C. are good conductors of electricity.
- D. turn red litmus blue.

5. Which of the following gases will be produced if magnesium carbonate reacts with sulphuric acid?
- A. Carbon monoxide
 - B. Sulphur dioxide
 - C. Carbon dioxide
 - D. Hydrogen

6. The given equation shows the dissociation of tetraaminecopper(II)sulphate in water.

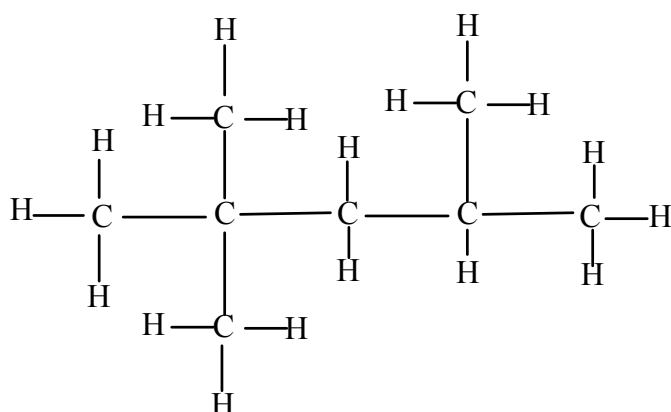


Which of the following types of salt is tetraaminecopper(II)sulphate?

- A. Complex
 - B. Normal
 - C. Double
 - D. Mixed
7. Saturated hydrocarbons being least reactive are also known as
- A. catalysts.
 - B. olefins.
 - C. isomers.
 - D. paraffins.
8. Which of the following alkyl radicals is formed from propane?

$\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_3 - \text{CH} - \text{CH}_2 - \end{array}$	$\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_3 - \text{C} - \text{CH}_3 \\ \end{array}$
A.	B.
$\begin{array}{c} \text{H} \\ \\ \text{CH}_3 - \text{C} - \text{CH}_3 \\ \end{array}$	$\begin{array}{c} \text{H} \\ \\ \text{CH}_3 - \text{C} - \text{CH}_2 - \text{CH}_3 \\ \end{array}$
C.	D.

9. A student added an organic compound containing an aldehyde to a test tube with equal volumes of Fehling's solution A and B. What will happen on boiling the contents of the test tube?
- Bubbles of CO_2 will evolve.
 - Red precipitates will be formed.
 - White precipitates will be formed.
 - Unpleasant odour will be given out.
10. Which of the following is the IUPAC name of the given compound?



- 2, 4-methyl pentane
- 2 – methyl-4-dimethyl pentane
- 2, 4, 4-trimethyl pentane
- 2, 2, 4-trimethyl pentane

11. Which of the following is the cross and dot formula of butylene?

A.	$ \begin{array}{c} \text{H} \\ \times \\ \cdot \\ \text{H} \times \cdot \text{C} \cdot \times \text{C} \begin{array}{c} \times \cdot \\ \cdot \times \end{array} \times \text{C} \cdot \times \text{C} \cdot \times \text{H} \\ \times \\ \cdot \\ \text{H} \end{array} $
B.	$ \begin{array}{cccc} \text{H} & \text{H} & \text{H} & \text{H} \\ \times & \times & \times & \times \\ \cdot & \cdot & \cdot & \cdot \\ \text{H} \times \cdot \text{C} \times & \cdot \text{C} \times & \cdot \text{C} \times & \cdot \text{C} \cdot \times \text{H} \\ \times & \times & \times & \times \\ \text{H} & \text{H} & \text{H} & \text{H} \end{array} $
C.	$ \begin{array}{cccc} \text{H} & \text{H} & \text{H} & \\ \times & \times & \times & \\ \cdot & \cdot & \cdot & \cdot \\ \text{H} \times \cdot \text{C} \cdot \times & \text{C} \cdot \times & \text{C} \times \times & \text{C} \cdot \times \text{H} \\ \times & \times & \times & \times \\ \text{H} & \text{H} & & \text{H} \end{array} $
D.	$ \begin{array}{c} \text{H} \quad \text{H} \\ \times \quad \times \\ \cdot \quad \cdot \\ \text{H} \times \cdot \text{C} \begin{array}{c} \times \cdot \\ \cdot \times \end{array} \times \text{C} \cdot \times \text{C} \cdot \times \text{C} \cdot \times \text{H} \\ \times \quad \times \\ \cdot \quad \cdot \\ \text{H} \quad \text{H} \end{array} $

12. When alkenes react with KMnO_4 , decolourization of pink colour occurs. This is because the double bond electrons react with

- A. MnO_4^-
- B. MnO_2
- C. K^+
- D. H_2O

13. Physical tests established that a child's body was unable to absorb calcium. This indicates that the child probably has a deficiency of
- A. vitamin A.
 - B. vitamin B.
 - C. vitamin C.
 - D. vitamin D.
14. Which of the following is the building block of lipids?
- A. $C_6H_{12}O_6$
 - B. $C_{12}H_{22}O_{11}$
 - C. $C_{15}H_{31}COOH$
 - D. $RCH(NH_2)COOH$
15. Dextrose is given to patients through drips because it richly provides
- A. fibre.
 - B. a protein.
 - C. an electrolyte.
 - D. a carbohydrate.
16. Which of the following carbohydrates is **WRONGLY** paired up with its source?

	Carbohydrate	Source
A	Lactose	Apple
B	Sucrose	Sugar cane
C	Maltose	Barley
D	Cellulose	Cotton

17. Which of the following pairs of gases is responsible for absorbing infrared radiations emitted by the Earth's surface in troposphere?
- A. Ozone and oxygen
 - B. Oxygen and nitrogen
 - C. Nitrogen and carbon dioxide
 - D. Carbon dioxide and water vapours
18. Which of the following is a long-term effect of increasing carbon dioxide in the atmosphere?
- A. Melting of glaciers and ice bergs
 - B. Suffocation and ultimate death of fish
 - C. Increased respiratory problems to asthmatic people
 - D. Loss of heat energy from the Earth's surface

19. Which of the following reactions under normal condition maintains a balance in ozone concentrations in the stratosphere?
- I. $\text{O}_3 + \text{Cl} \rightarrow \text{O}_2 + \text{OCl}^\bullet$
 - II. $\text{O}_3 + \text{O} \rightarrow 2\text{O}_2$
 - III. $\text{O}^\bullet + \text{O}^\bullet \rightarrow \text{O}_2$
 - IV. $\text{O}_2 + \text{O} \rightarrow \text{O}_3$
- A. I and II only
 - B. I and III only
 - C. II and IV only
 - D. III and IV only
20. Which of the following compounds of calcium precipitates out when hard water is treated with slaked lime?
- A. Sulphates
 - B. Chlorides
 - C. Carbonates
 - D. Bicarbonates
21. The formation of scum makes hard water unfit to be used in
- A. engines.
 - B. laundry.
 - C. drinking.
 - D. agriculture.
22. An ion-exchanger is used to remove permanent hardness from water. When the resin is fully used up, it is flushed with a concentrated solution of
- A. sodium chloride.
 - B. calcium sulphate.
 - C. calcium chloride.
 - D. magnesium sulphate.
23. Which of the following reacts with ammonia to form urea?
- A. Water
 - B. Carbon dioxide
 - C. Carbon monoxide
 - D. Ammonium carbamate
24. Which of the following techniques is used to separate substances at varying boiling points?
- A. Distillation
 - B. Evaporation
 - C. Bessemerization
 - D. Fractional distillation

25. Which of the following chemicals are used in the recovery of ammonia in Solvay's process?
- A. Sodium carbonate + Ammonium chloride
 - B. Ammonium chloride + Calcium hydroxide
 - C. Sodium chloride + Ammonium bicarbonate
 - D. Ammonium chloride + Calcium carbonate

END OF PAPER