

# CHEMISTRY SET I

Subject Code: 4300006

Date: 2025-04-16

Subject Name: CHEMISTRY

Time Duration: 120.0 minutes

Total Marks: 160

## Instructions:

1. Stable Internet Required: Ensure a good connection.
2. Use Allowed Devices: Only a laptop/PC; no mobile phones or smartwatches.
3. No Switching Tabs: Changing windows may lead to disqualification.
4. Answer all questions within the given time limit. No extra time will be provided.
5. Submit the exam before the deadline, as responses will not be accepted afterward.

### 1. The neutralization reaction between an acid and a base is a type of

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- ☒ Double displacement reaction
- ☐ Displacement reaction
- ☐ Addition reaction
- ☐ Decomposition reaction

### 2. Which of the following gases is used in the storage of fat and oil-containing foods for long time?

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- ☐ Carbon dioxide gas ☒ Nitrogen gas ☐ Oxygen gas ☐ Neon gas

### 3. When ferrous sulphate is heated strongly it undergoes decomposition to form ferric oxide as a main product accompanied by change in color form:

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- ☐ Blue to green ☐ Green to blue ☒ Green to brown ☐ Green to yellow

### 4. All the methods mentioned below can be used to prevent the food from getting rancid except i) Storing the food in the air-tight containers ii) Storing the food in refrigerator iii) Keeping the food in clean and covering containers iv) Always touching the food with clean hands.

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- ☐ (i) and (ii) ☐ (i) and (iii) ☐ (i)(iii) and (iv) ☒ (iii) and (iv)

### 5. It is necessary to balance a chemical equation in order to satisfy the law of

2

- ☐ Conservation of Motion
- ☒ Conservation of mass
- ☐ Conservation of momentum
- ☐ Conservation of Energy



**6. One of the following process does not involve a chemical reaction That is:**

2

- ☒ Melting of candle wax when heated
- ☐ Burning of candle wax when heated
- ☐ Digestion of food in our stomach
- ☐ Ripening of Banana

**7. A chemical reaction does not involve**

2

- ☐ Formation of new substances having entirely different properties than that of the reactants
- ☐ Breaking of old chemical bonds and formation of new chemical bonds
- ☐ Rearrangement of the atoms of reactants to form new products
- ☒ Changing of the atoms of one element into those of another element to form new products

**8. The respiration process during which glucose undergoes slow combustion by combining with oxygen in the cells of our body to produce energy is a kind of:**

2

- ☒ Exothermic Process
- ☐ Endothermic Process
- ☐ Reversible Process
- ☐ Physical Process

**9. In a chemical reaction between sulphuric acid and barium chloride solution the white precipitates formed are of:**

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- ☐ Hydrochloric acid ☒ Barium sulphate ☐ Chlorine ☐ Sulphur

**10. Before burning in air, the magnesium ribbon is cleaned by rubbing with sandpaper to**

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- ☐ Make the ribbon surface shiner
- ☒ Remove the layer of magnesium oxide from the ribbon surface
- ☐ Remove the layer of magnesium carbonate from the ribbon surface
- ☐ Remove the moisture from the ribbon surface

**11. Which of the following are exothermic processes? i) Reaction of water with quick lime ii) Dilution of an acid iii) Evaporation of water iv) Sublimation of crystals (camphor)**

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- ☒ (i) and (ii) ☐ (ii) and (iii) ☐ (i) and (iv) ☐ (ii) and (iv)

**12. The process of reduction involves**

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- ☐ addition of oxygen
- ☐ addition of hydrogen
- ☐ removal of hydrogen
- ☒ removal of oxygen

**13. A substance 'X' is used in white-washing and is obtained by heating limestone in the absence of air. Identify 'X'.**

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- ☐  $\text{CaOCl}_2$  ☐  $\text{Ca(OH)}_2$  ☒  $\text{CaO}$  ☐  $\text{CaCO}_3$

**14. What type of chemical reactions take place when electricity is passed through water?**

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- ☐ Displacement ☐ Combination ☒ Decomposition ☐ Double Displacement



**15. A substance added to food containing fats and oils is called:**

- ☐ Oxidant ☐ Rancid ☐ Coolant ☒ Antioxidant

2

**16. Select the oxidising agent for the following reaction  $\text{H}_2\text{S} + \text{I}_2 \rightarrow 2\text{HI} + \text{S}$**

- ☒  $\text{I}_2$  ☐  $\text{H}_2\text{S}$  ☐  $\text{HI}$  ☐  $\text{S}$

2

**17. Which of the following is Not True with respect to the neutralization reaction?**

- ☐ Salt is formed  
☐ Reaction occurs between an acid and a base  
☐ Reactive element displaces less reactive elements  
☒ Reactants are in gaseous state

2

**18. Methyl orange is**

- ☒ Pink in acidic medium and yellow in basic medium  
☐ Yellow in acidic medium and pink in basic medium  
☐ Colourless in acidic medium and pink in basic medium  
☐ Pink in acidic medium and colorless in basic medium

2

**19. Lime water is**

- ☐  $\text{CaO}$  ☒  $\text{Ca(OH)}_2$  ☐  $\text{CaCO}_3$  ☐  $\text{CaCl}_2$

2

**20. Which of the following salts has no water of crystallization ?**

- ☐ Blue Vitrol ☐ Washing Soda ☒ Baking Soda ☐ Gypsum

2

**21. Most of the oxides of metals when react with acid , form \_\_\_\_**

- ☐ A Base ☐ An Acid ☒ A Salt ☐ Either (1) or (2)

2

**22. Generally, when certain metals react with an acid they release \_\_\_\_ gas.**

- ☐ Nitrogen ☐ Oxygen ☒ Hydrogen ☐ Argon

2

**23. Which of the given is a strong base ?**

- ☐ Calcium Hydroxide  
☐ Magnesium Hydroxide  
☐ Ammonium Hydroxide  
☒ Potassium Hydroxide

2

**24. Which one of the given is the PH value of pure water**

- ☐ 0 ☒ 7 ☐ 8 ☐ 1

2

**25. Which one of the following is formed when calcium hydroxide reacts with carbon dioxide ?**

- ☐ Hydrogen gas ☐ Water ☐ Salt ☒ Both Water and Salt

2

**26. When acids dissolve in water it releases \_\_\_\_.**

- ☐  $\text{H}^+$  ion ☐  $\text{H}^-$  ion ☒  $\text{H}_3\text{O}^+$  ion ☐  $\text{H}_3\text{O}_2^+$  ion

2



**27. Black ash is \_\_\_\_.**

- ☐ Dry KOH ☒ Barium sulphate ☐ Charcoal ☐ Hydrated KOH

2

**28. The pH of commonly used toothpaste is ?**

- ☐ <6.5 ☒  $\geq 7$  ☐  $\geq 2.2$  ☐ None of these

2

**29. The pH of Gastric juice is**

- ☐ <6.5 ☐  $\geq 7$  ☒ 1.5 to 3.5 ☐ None of Above

2

**30. The chemical formula of Plaster of Paris is**

Answer:  $\text{CaSO}_4, 1/2 \text{H}_2\text{O}$

2

**31. What happens when a solution of an acid is mixed with a solution of base in a test tube ? i) The temperature of the solution increases. ii) The temperature of the solution decreases. iii) The temperature of the solution remains the same. iv) Salt formation takes place.**

- ☐ (i) only ☐ (i) and (ii) ☐ (ii) and (iii) ☒ (i) and (iv)

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**32. Chemical formula of washing soda is**

Answer:  $\text{Na}_2\text{CO}_3, 10\text{H}_2\text{O}$

2

**33. An aqueous solution turns red litmus solution blue. Excess addition of which of the following solution would be the reverse change ?**

- ☐ Baking Powder ☐ Lime ☐ Ammonium hydroxide solution ☒ Hydrochloric acid

2

**34. Sodium Hydroxide is used**

- ☐ as an antacid ☒ in manufacturing of soap ☐ as a cleansing agent ☐ in alkaline

2

**35. The pH of a solution is 7. How can you increase its pH ?**

- ☐ By adding a small amount of acid  
☒ By adding small amount of base  
☐ By adding a small amount of salt  
☐ By passing carbon dioxide gas through it

2

**36. Sodium hydroxide is a \_\_\_\_**

- ☐ weak base ☐ weak acid ☒ strong base ☐ strong acid

2

**37. Which of the following gives the correct increasing order of acidic strength ?**

- ☒ Water < Acetic acid < Hydrochloric acid  
☐ Water < Hydrochloric acid < Acetic acid  
☐ Acetic acid < Water < Hydrochloric acid  
☐ Hydrochloric acid < Water < Acetic acid

2

**38. Rain is called acid rain when its**

- ☐ pH falls below 7 ☐ pH falls below 6 ☒ pH falls below 5.6 ☐ pH is above 7

2



**39. If a few drops of a concentrated acid accidentally spills over the hand of the student, what should be done ?**

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- ☐ Wash the hand with saline water
- ☒ Wash the hand immediately with plenty of water and apply a paste of sodium hydrogencarbonate
- ☐ After washing with plenty of water apply solution of sodium hydroxide on the hand.
- ☐ Neutralize the acid with a strong alkali

**40. Farmers neutralize the effect of acidity of the soil by adding**

2

- ☒ Slaked lime
- ☐ gypsum
- ☐ caustic soda
- ☐ baking soda

**41. What is the pH range of our body ?**

2

- ☒ 7.0 - 7.8
- ☐ 7.2 - 8.0
- ☐ 7.0 - 8.4
- ☐ 7.2 - 8.4

**42. Tooth enamel is made up of ?**

2

- ☒ calcium phosphate
- ☐ calcium carbonate
- ☐ calcium oxide
- ☐ potassium

**43. Increase in the OH<sup>-</sup> ion concentration, leads to**

2

- ☒ an increase in the pH of solution
- ☐ a decrease in the pH of solution
- ☐ doesn't alter the pH of solution
- ☐ decrease the basic strength of the solution.

**44. Lime water reacts with chlorine to give**

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- ☒ bleaching powder
- ☐ baking powder
- ☐ baking soda
- ☐ washing soda

**45. Alkalis are**

2

- ☐ acids (which are soluble in water)
- ☐ acids (which are insoluble in water)
- ☒ bases (which are soluble in water)
- ☐ bases (which are insoluble in water)

**46. Acids react with metal carbonates to liberate \_\_\_ gas**

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- ☒ Carbon dioxide
- ☐ Carbon monoxide
- ☐ hydrogen
- ☐ water

**47. Lime water turns milky when carbon dioxide is passed due to formation of \_\_\_\_.**

2

- ☒ CaCO<sub>3</sub>
- ☐ CaO
- ☐ CO<sub>2</sub>
- ☐ CaSO<sub>4</sub>

**48. How is the concentration of hydronium ions (H<sub>3</sub>O<sup>+</sup>) affected when a solution of an acid is diluted**

2

- ☐ Increases
- ☒ Decreases
- ☐ Remains same
- ☐ Becomes Zero

**49. From the following, which one is the example of chemical reaction ?**

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- ☐ Grapes get fermented
- ☐ Breakdown of food
- ☐ Formation of curd
- ☒ All of the above



**50. Which of the following shows an oxidation reaction ?**

- ☒ Gain of Oxygen ☐ Loss of Oxygen ☐ Gain of Hydrogen ☐ None of Above

2

**51. What is the product obtained when lead nitrate is heated ?**

- ☒ Lead Oxide ☐ Lead Nitrate ☐ Lead Sulphate ☐ Lead Chloride

2

**52. In a chemical equation, the number written in front of a chemical formula represents:**

- ☐ Atomic Number  
☐ Molecular Mass  
☒ Number of Molecules  
☐ Number of atoms or molecules taking part in the reaction

2

**53. The balanced chemical equation for the reaction between hydrogen and oxygen to form water is:**

- ☐  $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}$  ☒  $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$  ☐  $\text{H}_2\text{O} \rightarrow \text{H}_2 + \text{O}_2$  ☐  $2\text{H}_2\text{O} \rightarrow 2\text{H}_2 + \text{O}_2$

2

**54. The type of chemical reaction in which two or more substances combine to form a single product is called**

Answer: Combination Reaction

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**55. What is the product obtained when copper (II) oxide is heated with hydrogen gas ?**

- ☐ Copper Oxide ☒ Copper Metal ☐ Copper Sulphate ☐ Copper Chloride

2

**56. Which of the following statements is true regarding a decomposition reaction**

- ☒ A single reactant breaks down into two or more products  
☐ Two or more reactants combine to form a single product  
☐ A metal displaces another metal to form its salt solution  
☐ A non metal displaces another non-metal from its compound.

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**57. The chemical name of the baking soda commonly used in cooking is**

- ☐ Sodium chloride  
☒ Sodium bicarbonate  
☐ Sodium carbonate  
☐ sodium hydroxide

2

**58. The chemical formula for sulfuric acid is:**

- ☐  $\text{H}_2\text{SO}_3$  ☐  $\text{HCl}$  ☒  $\text{H}_2\text{SO}_4$  ☐  $\text{HNO}_3$

2

**59. Reaction of 'magnesium' with air is**

- ☒ Exothermic reaction  
☐ Endothermic reaction  
☐ Reversible reaction  
☐ Substitution

2

**60. What chemicals are used in fireworks**

- ☐ Copper Chloride ☐ Calcium Chloride ☐ Barium Chloride ☒ All of Above

2



**61. When crystals of lead nitrate are heated strongly in a dry test tube**

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- ☐ Crystals immediately melt
- ☒ Brown residue is left
- ☐ White fumes appear in the tube
- ☐ A yellow residue is left

**62. The reaction in which two compounds exchange their ions to form two new compounds called**

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Answer: Double displacement reaction

**63. Which of the following is characteristics of acids ?**

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- ☒ Sour Taste
- ☐ Bitter Taste
- ☐ Slippery feel
- ☐ Blue litmus to Red

**64. Which of the following is a weak base ?**

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- ☐ Sodium hydroxide
- ☒ Ammonium Hydroxide
- ☐ Calcium Hydroxide
- ☐ Potassium Hydroxide

**65. Which of the following is an example of salt ?**

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- ☐ Sugar
- ☐ Calcium Carbonate
- ☒ Sodium Chloride
- ☐ Hydrogen Peroxide

**66. What is the chemical formula of hydrochloric acid is HCL ?**

2

Answer: True

**67. Which of the following is natural indicator ?**

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- ☐ Phenolphthalein
- ☐ Methyl Orange
- ☒ Litmus
- ☐ Vitrol Blue

**68. Which acid is found in vinegar ?**

2

- ☐ Sulfuric Acid
- ☐ Nitric Acid
- ☒ Acetic Acid
- ☐ HCL

**69. What is the pH value of lemon juice ?**

2

- ☐ 1
- ☐ 7
- ☐ 14
- ☒ 5

**70. Which of the following is a weak acid ?**

2

- ☐ HCL
- ☐ Sulfuric acid
- ☐ Nitric Acid
- ☒ Carbonic Acid

**71. Which one of the given is commonly known as blue vitriol and is used as fungicide ?**

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- ☐ Potassium Nitrate
- ☒ Copper Sulphate
- ☐ Sodium Carbonate
- ☐ Sodium Chloride

**72. Which one is different from others**

2

- ☐ Nitric acid
- ☒ Tartaric acid
- ☐ Sulphuric acid
- ☐ Phosphoric acid



**73. Common salt beside being used in the kitchen can also be used as the raw material for the production of A) Baking Powder B) Washing Soda C) Black Ash D) Slaked Lime**

- ☐ (B) and (C) ☐ (A) and (C) ☒ (A) and (B) ☐ (B) and (D) 2

**74. When electricity is passed through NaCl aqueous solution**

- ☐ Sodium metal is deposited 2  
☐ Only chlorine gas is produced  
☒ Chlorine and Hydrogen gases are produced  
☐ All of the given are produced

**75. Vinegar is used in pickling as it**

- ☐ Is an acid 2  
☒ Prevents the growth of microbes  
☐ Prevents drying of pickle  
☐ Increase taste

**76. Which of the following cannot be changed while balancing a chemical equation**

- ☒ No of Atoms ☐ No of Molecules ☐ Molecular formula ☐ Molecular mass 2

**77. Which of the following processes involve chemical reactions ?**

- ☐ Storing of oxygen gas under pressure in a gas cylinder 2  
☐ Liquefaction of air  
☐ Keeping petrol in a china dish in the open  
☒ Heating the copper in presence of air at high pressure

**78. In the reaction  $3\text{O}_2(\text{g}) + 2\text{H}_2\text{S}(\text{g}) \rightarrow 2\text{H}_2\text{O}(\text{l}) + 2\text{SO}_2(\text{g})$  the reducing agent is**

- ☐  $\text{O}_2$  ☐  $\text{H}_2\text{O}$  ☒  $\text{H}_2\text{S}$  ☐  $\text{SO}_2$  2

**79. When crystals of lead nitrate are heated strongly in a dry test tube**

- ☐ Crystals immediately melt 2  
☒ A brown residue is formed  
☐ White fumes appear in the tube  
☐ A yellow residue is formed

**80. Soda acid fire extinguishes the fire by**

- ☒ Cutting the supply of air 2  
☐ Raising ignition temperature  
☐ Removing combustible substances  
☐ None of these

