

Organic Chemistry

Subject Code: BE04

Date: 2025-03-07

Subject Name: Organic Chemistry

Time Duration: -

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

Marks: 2

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

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

Marks: 2

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

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

Marks: 2

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



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.

Marks: 2

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

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

Marks: 2

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

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

Marks: 2

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



A chemical reaction does not involve

Marks: 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

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:

Marks: 2

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

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

Marks: 2

- ☐ Hydrochloric acid
- ☒ Barium sulphate
- ☐ Chlorine
- ☐ Sulphur



Before burning in air, the magnesium ribbon is cleaned by rubbing with sandpaper to:
Marks: 2

- ☐ 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

**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)**

Marks: 2

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

The process of reduction involves

Marks: 2

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



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

Marks: 2

- ☐ CaOCl_2
- ☐ $\text{Ca}(\text{OH})_2$
- ☒ CaO
- ☐ CaCO_3

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

Marks: 2

- ☐ Displacement
- ☐ Combination
- ☒ Decomposition
- ☐ Double Displacement

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

Marks: 2

- ☐ Oxidant
- ☐ Rancid
- ☐ Coolant
- ☒ Antioxidant

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

Marks: 2

- ☒ I_2
- ☐ H_2S
- ☐ HI
- ☐ S



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

Marks: 2

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

Methyl orange is

Marks: 2

- ☒ 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

Lime water is

Marks: 2

- ☐ CaO
- ☒ Ca(OH)₂
- ☐ CaCO₃
- ☐ CaCl₂

Which of the following salts has no water of crystallization ?

Marks: 2

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



Most of the oxides of metals when react with acid , form ____

Marks: 2

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

Generally, when certain metals react with an acid they release ____ gas.

Marks: 2

- ☐ Nitrogen
- ☐ Oxygen
- ☒ Hydrogen
- ☐ Argon

Which of the given is a strong base ?

Marks: 2

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

Which one of the given is the PH value of pure water

Marks: 2

- ☐ 0
- ☒ 7
- ☐ 8
- ☐ 1



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

Marks: 2

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

When acids dissolve in water it releases ____.

Marks: 2

- ☐ H⁺ ion
- ☐ H⁻ ion
- ☒ H₃O⁺ ion
- ☐ H₃O₂⁺ ion

Black ash is ____.

Marks: 2

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

The pH of commonly used toothpaste is ?

Marks: 2

- ☐ <6.5
- ☒ ≥ 7
- ☐ ≥ 2.2
- ☐ None of these



The pH of Gastric juice is

Marks: 2

- ☐ <6.5
- ☐ ≥ 7
- ☒ 1.5 to 3.5
- ☐ None of Above

The chemical formula of Plaster of Paris is

Marks: 2

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

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.

Marks: 2

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

Chemical formula of washing soda is

Marks: 2

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



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

Marks: 2

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

Sodium Hydroxide is used

Marks: 2

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

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

Marks: 2

- ☐ 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

Sodium hydroxide is a _____

Marks: 2

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



Which of the following gives the correct increasing order of acidic strength ?

Marks: 2

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

Rain is called acid rain when its

Marks: 2

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

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

Marks: 2

- ☐ 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

Farmers neutralize the effect of acidity of the soil by adding

Marks: 2

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



What is the pH range of our body ?

Marks: 2

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

Tooth enamel is made up of ?

Marks: 2

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

Increase in the OH⁻ ion concentration, leads to

Marks: 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.

Lime water reacts with chlorine to give

Marks: 2

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



Alkalis are

Marks: 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)

Acids react with metal carbonates to liberate ____ gas

Marks: 2

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

Lime water turns milky when carbon dioxide is passed due to formation of ____.

Marks: 2

- ☒ CaCO_3
- ☐ CaO
- ☐ CO_2
- ☐ CaSO_4

How is the concentration of hydronium ions (H_3O^+) affected when a solution of an acid is diluted

Marks: 2

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



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

Marks: 2

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

Which of the following shows an oxidation reaction ?

Marks: 2

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

What is the product obtained when lead nitrate is heated ?

Marks: 2

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

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

Marks: 2

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



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

Marks: 2

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

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

Marks: 2

Answer: Combination Reaction

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

Marks: 2

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

Which of the following statements is true regarding a decomposition reaction

Marks: 2

- ☒ 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.



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

Marks: 2

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

The chemical formula for sulfuric acid is:

Marks: 2

- ☐ H_2SO_3
- ☐ HCL
- ☒ H_2SO_4
- ☐ HNO_3

Reaction of 'magnesium' with air is

Marks: 2

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

What chemicals are used in fireworks

Marks: 2

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



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

Marks: 2

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

The reaction in which two compounds exchange their ions to form two new compounds is called

Marks: 2

Answer: Double displacement reaction

Which of the following is characteristics of acids ?

Marks: 2

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

Which of the following is a weak base ?

Marks: 2

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



Which of the following is an example of salt ?

Marks: 2

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

What is the chemical formula of hydrochloric acid is HCL ?

Marks: 2

Answer: True

Which of the following is natural indicator ?

Marks: 2

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

Which acid is found in vinegar ?

Marks: 2

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



What is the pH value of lemon juice ?

Marks: 2

- ☐ 1
- ☐ 7
- ☐ 14
- ☒ 5

Which of the following is a weak acid ?

Marks: 2

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

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

Marks: 2

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

Which one is different from others

Marks: 2

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



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

Marks: 2

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

When electricity is passed through NaCl aqueous solution

Marks: 2

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

Vinegar is used in pickling as it

Marks: 2

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

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

Marks: 2

- ☒ No of Atoms
- ☐ No of Moleclues
- ☐ Molecular formula
- ☐ Molecular mass



Which of the following processes involve chemical reactions ?

Marks: 2

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

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

Marks: 2

- ☐ O_2
- ☐ H_2O
- ☒ H_2S
- ☐ SO_2

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

Marks: 2

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

Soda acid fire extinguishes the fire by

Marks: 2

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

