

**SEMESTER 1 EXAMINATION**

**CHEMISTRY**

**SCIENCE PAPER 2**

*Maximum Marks: 40*

*Time allowed: One hour*

*You will not be allowed to write during the first 10 minutes.*

*This time is to be spent in reading the question paper.*

**ALL QUESTIONS ARE COMPULSORY**

*The intended marks for questions or parts of questions are given in brackets [ ].*

**Select the correct option for each of the following questions.**

**Question 1**

In the Periodic Table, elements of Period 3 are arranged in the increasing order of ionization potential as:

[1]

- (a) B, N, Cl, Ar
- (b) Mg, Si, S, Ar
- (c) Ar, Si, S, Mg
- (d) Si, Ar, Cl, Mg

Answer: \_\_\_\_\_

**Question 2**

If Relative Molecular Mass of Butane ( $C_4H_{10}$ ) is 58 then its vapour density will be:

[1]

- (a) 58
- (b) 29
- (c) 32
- (d) 16

Answer: \_\_\_\_\_

**This paper consists of 14 printed pages including 2 rough sheets.**

### Question 3

Identify one statement that holds true for electrolysis of molten lead bromide:

- (a) Silver grey metal deposits at the anode
- (b) Temperature is not maintained during the electrolysis
- (c) Brown vapours of bromine are obtained at the anode
- (d) Electrolyte contains  $H^+$  ions along with  $Pb^{2+}$  ions

Answer: \_\_\_\_\_

### Question 4

The tendency of an atom to attract shared pair of electrons to itself when forming a chemical bond is known as:

- (a) Electron affinity
- (b) Electronegativity
- (c) Ionization potential
- (d) Nuclear charge

Answer: \_\_\_\_\_

### Question 5

Solid sodium chloride **does not** conduct electricity as:

- (a) The strength of the bond is weak
- (b) It contains free ions
- (c) It does not contain any free ions
- (d) It contains free ions as well as molecules

Answer: \_\_\_\_\_

### Question 6

Elements A and B have electronic configurations 8 and 13 respectively. The chemical formula formed between A and B will be:

- (a) AB
- (b)  $B_3A_3$
- (c)  $A_2B_3$
- (d)  $B_2A_3$

Answer: \_\_\_\_\_

**Question 7**

The percentage of hydrogen present in NaOH is: (Relative Molecular Mass of NaOH = 40)

(At. Wt. of H = 1)

- (a) 2.5
- (b) 25
- (c) 0.25
- (d) 0.025

**Answer:** \_\_\_\_\_

**Question 8**

A salt formed by incomplete neutralization of an acid by a base:

- (a) Basic salt
- (b) Acid salt
- (c) Normal salt
- (d) Complex salt

**Answer:** \_\_\_\_\_

**Question 9**

The colour of the precipitate formed after the addition of a small amount of sodium hydroxide solution to an aqueous solution of ferric chloride is:

- (a) gelatinous white
- (b) pale blue
- (c) reddish brown
- (d) dirty green

**Answer:** \_\_\_\_\_

**Question 10**

Alkaline earth metals have the same:

- (a) number of valence electrons
- (b) number of shells
- (c) metallic property
- (d) ionization potential

**Answer:** \_\_\_\_\_

**Question 11**

Which of the following compounds neither dissociate nor ionise in water?

- (a) Hydrochloric acid
- (b) Sodium hydroxide
- (c) Potassium Nitrate
- (d) Carbon tetrachloride

Answer: \_\_\_\_\_

**Question 12**

The table shows the electronic configuration of four elements.

element	electronic configuration
W	2, 6
X	2, 8
Y	2, 8, 1
Z	2, 8, 7

Which pair of atoms will form a covalent compound?

- (a) two atoms of W
- (b) two atoms of X
- (c) an atom of W and an atom of X
- (d) an atom of Y and an atom of Z

Answer: \_\_\_\_\_

**Question 13**

Element with an atomic number 19 will:

- (a) accept an electron and get oxidized
- (b) accept an electron and get reduced
- (c) lose an electron and get oxidized
- (d) lose an electron and get reduced

Answer: \_\_\_\_\_

**Question 14**

Which of the following has two sets of lone pair of electrons in them?

- (a) Ammonia
- (b) Methane
- (c) Water
- (d) Ammonium ion

Answer: \_\_\_\_\_

**Question 15**

If the empirical mass of the formula  $PQ_2$  is 10 and the Relative Molecular Mass is 30, then the molecular formula will be:

- (a)  $PQ_2$
- (b)  $P_3Q_2$
- (c)  $P_6Q_3$
- (d)  $P_3Q_6$

Answer: \_\_\_\_\_

**Question 16**

Which of the following is a tribasic acid?

- (a)  $H_2SO_4$
- (b)  $Al(OH)_3$
- (c)  $H_3PO_4$
- (d)  $Ca(OH)_2$

Answer: \_\_\_\_\_

**Question 17**

If a solution of an electrolyte mixture has calcium ions, cupric ions, zinc ions and magnesium ions, which of these ions would you see preferentially discharged at the cathode?

- (a) Calcium ions
- (b) Zinc ions
- (c) Cupric ions
- (d) Magnesium ions

Answer: \_\_\_\_\_

### Question 18

Which of the following ions will readily discharge at the anode during the electrolysis of acidulated water?

- (a)  $\text{OH}^-$
- (b)  $\text{SO}_4^{2-}$
- (c)  $\text{Cl}^-$
- (d)  $\text{H}^+$

Answer: \_\_\_\_\_

### Question 19

If the empirical formula of a compound is  $\text{CH}$  and its vapour density is 13, then its molecular formula will be:

(At. Wt.  $\text{C}=12$ ,  $\text{H}=1$ )

- (a)  $\text{CH}$
- (b)  $\text{C}_2\text{H}_2$
- (c)  $\text{C}_4\text{H}_4$
- (d)  $\text{C}_3\text{H}_3$

Answer: \_\_\_\_\_

### Question 20

Aqueous solution of Cupric chloride forms a deep blue solution on addition of:

- (a) dropwise sodium hydroxide
- (b) excess sodium hydroxide
- (c) dropwise ammonium hydroxide
- (d) excess ammonium hydroxide

Answer: \_\_\_\_\_

### Question 21

Which statement about conduction of electricity is correct?

- (a) Electricity is conducted in aqueous solution by electrons
- (b) Electricity is conducted in a metal wire by ions
- (c) Electricity is conducted in a molten electrolyte by electrons
- (d) Electricity is conducted in an acid solution by ions

Answer: \_\_\_\_\_



### Question 22

If an element has low ionization potential, then it is likely to be a:

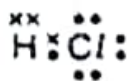
- (a) metal
- (b) metalloid
- (c) non metal
- (d) inert gas

Answer: \_\_\_\_\_

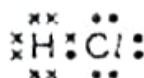
### Question 23

Which electron arrangement for the outer shell electrons in a covalent compound is correct?

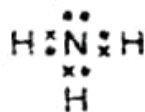
(a)



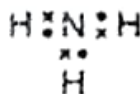
(b)



(c)



(d)



Answer: \_\_\_\_\_

### Question 24

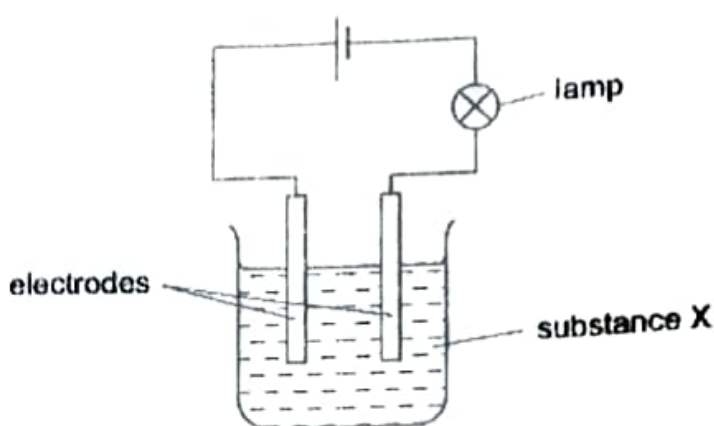
The products formed when an acid reacts with a base is:

- (a) salt and hydrogen
- (b) salt and oxygen
- (c) salt and water
- (d) salt and carbon dioxide

Answer: \_\_\_\_\_

### Question 25

In the circuit below, the lamp lights up.



What could X be?

- (a) a solution of alcohol in water
- (b) a solution of sodium chloride in water
- (c) sugar solution
- (d) solid potassium chloride

Answer: \_\_\_\_\_

### Question 26

Which one of the following is a non metallic cation?

- (a)  $K^+$
- (b)  $NH_4^+$
- (c)  $Cu^{2+}$
- (d)  $Na^+$

Answer: \_\_\_\_\_

### Question 27

Type of bonding present in hydrogen chloride:

- (a) metallic
- (b) ionic
- (c) covalent
- (d) coordinate

Answer: \_\_\_\_\_



**Question 28**

The non-metallic properties of elements from left to right in a Periodic Table:

- (a) increases
- (b) decreases
- (c) remains same
- (d) first increases and then decreases

**Answer:** \_\_\_\_\_

**Question 29**

The aqueous solution that contains both ions and molecules:

- (a) sulphuric acid
- (b) nitric acid
- (c) acetic acid
- (d) hydrochloric acid

**Answer:** \_\_\_\_\_

**Question 30**

The basic oxide which is an alkali:

- (a) Copper oxide
- (b) Sodium oxide
- (c) Ferric oxide
- (d) Zinc oxide

**Answer:** \_\_\_\_\_

**Question 31**

If the pH of a solution is '2', then the solution is a:

- (a) strong acid
- (b) strong alkali
- (c) weak acid
- (d) weak alkali

**Answer:** \_\_\_\_\_

**Question 32**

The acidity of aluminium hydroxide is:

- (a) 3
- (b) 1
- (c) 4
- (d) 2

Answer: \_\_\_\_\_

**Question 33**

Hydracids are those acids which contain:

- (a) Hydrogen with any metal
- (b) Hydrogen, a non-metal and oxygen
- (c) Hydrogen and a non-metal other than oxygen
- (d) Hydrogen and oxygen only

Answer: \_\_\_\_\_

**Question 34**

The oxidation reaction among the following is:

- (a)  $\text{Fe}^{3+} + 3\text{e}^- \rightarrow \text{Fe}$
- (b)  $\text{Fe}^{2+} - 1\text{e}^- \rightarrow \text{Fe}^{3+}$
- (c)  $\text{Cl}_2 + 2\text{e}^- \rightarrow 2\text{Cl}^{1-}$
- (d)  $\text{Cu}^{2+} + 2\text{e}^- \rightarrow \text{Cu}$

Answer: \_\_\_\_\_

**Question 35**

A student added excess of sodium hydroxide solution to each of the salt solutions. An insoluble precipitate formed was observed in:

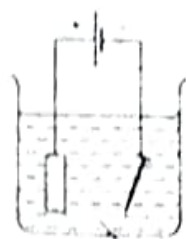
- (a) Calcium nitrate
- (b) Zinc nitrate
- (c) Lead nitrate
- (d) Sodium nitrate

Answer: \_\_\_\_\_

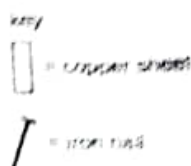
### Question 36

Which apparatus could be used to electroplate an iron nail with copper?

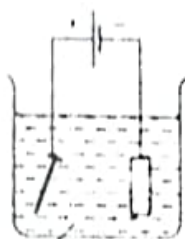
(a)



aqueous copper(II) sulphate

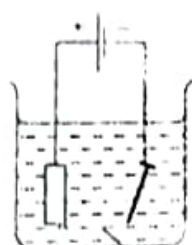


(b)



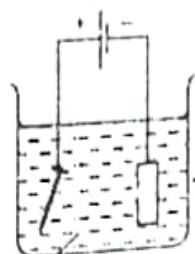
aqueous copper(II) sulphate

(c)



aqueous iron(II) sulphate

(d)



aqueous iron(II) sulphate

Answer: \_\_\_\_\_

**Question 37**

The table below shows the electronic arrangements of six atoms, A to F.

atom	A	B	C	D	E	F
electronic configuration	2,5	2	2,6	2,8,6	2,8,8	2,8,3

With respect to the table select the following:

(i) Two atoms from the same group of the periodic table:

- (a) D and E
- (b) C and D
- (c) E and F
- (d) C and E

**Answer:** \_\_\_\_\_

(ii) Two noble gases:

- (a) A and B
- (b) E and F
- (c) B and E
- (d) D and E

**Answer:** \_\_\_\_\_

(iii) The atom which is the most electronegative:

- (a) A
- (b) B
- (c) C
- (d) F

**Answer:** \_\_\_\_\_

(iv) The atom which has the highest ionization potential:

- (a) A
- (b) B
- (c) E
- (d) F

**Answer:** \_\_\_\_\_