



ཤེས་རིག་ལྷན་ཁག།  
ལྷ་ཉིག་ཐང་འབྲིང་རིམ་སློབ་གྲྭ་ཤོང་མ།



**MOTITHANG HIGHER SECONDARY SCHOOL  
THIMPHU THROMDE**

“Every child is **inspired** to learn and **empowered** with **wisdom** to excel in life”

**MID TERM EXAMINATION 2019**

Class: 9

Subject: Chemistry

2019

Writing time: 2 .15Hours

Total marks: 100

Name:.....Index.no.....Class.....Section.....

Invigilator's Initial

For Teachers use only												
Question Number	Section A					Section B						
	Qn 1	Qn 2	Qn 3	Qn 4	Qn 5	Qn 6	Qn 7	Qn 8	Qn 9	Qn 10	Qn 11	Qn 12
Marks	25	5	5	5	10	10	10	10	10	10	10	10
Total Marks Awarded												
Teacher's Initial												

**Read the following directions carefully.**

1. Do not write for the first 15 minutes. This time is to be spent reading over the questions. After having read over the questions the time given at the top of this paper is the time allowed for writing the answers.
2. On the space provided above, write your name, class and index number.
3. In this paper there are two sections – A and B. Section A is **compulsory** and you are expected to attempt **any five questions** from Section B.
4. The intended marks for questions or parts of the questions are given in the bracket.
5. Read the directions to each questions carefully and write your answers neatly in the space provided for section A and section B.

**Section: A (Compulsory): 50 Marks**

- 1. Direction:** There are 25 questions in this section and you must answer all the questions. Each question in this section is followed by four possible choices. Choose the most correct answer and write in the space provided below. You are not allowed to write more than one answer.

**[1x25 = 25]**

- I. Which group of elements is known as alkali metals?
- |            |                  |
|------------|------------------|
| a. Group 1 | c. Group 3 to 12 |
| b. Group 2 | d. Group 18      |

Answer .....

- II. Metals react with acid and liberate
- |             |                    |
|-------------|--------------------|
| a. Hydrogen | c. Carbon dioxide  |
| b. Oxygen   | d. Sulphur dioxide |

Answer .....

- III. In which of the following the ionic, covalent and coordinate bonds are present?
- |            |                      |
|------------|----------------------|
| a. Ammonia | c. Sodium cyanide    |
| b. Water   | d. Potassium bromide |

Answer .....

- IV. When double bonds is connecting two atoms, there is sharing of
- |                |                  |
|----------------|------------------|
| a. 2 electrons | c. 1 electrons   |
| b. 4 electrons | d. None of these |

Answer .....

- V. Which of the following elements loose the electron easily
- |       |       |
|-------|-------|
| a. Na | c. Mg |
| b. F  | d. Al |

Answer .....

- VI. In flame test which of the following is the colour of the flame by sodium salt?
- |          |           |
|----------|-----------|
| a. Green | c. Violet |
| b. Red   | d. Yellow |

Answer .....

- VII. Which of the following is used for filling balloons?
- |          |           |
|----------|-----------|
| a. Neon  | c. Helium |
| b. Argon | d. Xenon  |

Answer .....

- VIII. The radioactive noble gas is
- |           |            |
|-----------|------------|
| a. Argon  | c. Radon   |
| b. Helium | d. Krypton |

Answer .....

- IX. Which of the following elements has the highest first ionization energy
- |            |              |
|------------|--------------|
| a. Neon    | c. magnesium |
| b. Lithium | d. Calcium   |

Answer .....

- X. Which of the following element has the largest atomic radius?
- |             |             |
|-------------|-------------|
| a. Sodium   | c. Sulphur  |
| b. Aluminum | d. Chlorine |

Answer .....

- XI. In hydrogen molecules two hydrogen atom are held together by
- |                    |                  |
|--------------------|------------------|
| a. Coordinate bond | c. Ionic bond    |
| b. Covalent bond   | d. Metallic bond |

Answer .....

- XII. The maximum valency of element with atomic number 7 is
- |      |      |
|------|------|
| a. 7 | c. 4 |
| b. 3 | d. 5 |

Answer .....

- XIII. Molten NaCl conducts electricity due to the presence of
- |                   |                                |
|-------------------|--------------------------------|
| a. Free electrons | c. Free molecules              |
| b. Free ions      | d. Atom of sodium and chloride |

Answer .....

- XIV. The nature of chemical bonding in diamond is
- a. Ionic
  - b. Coordinate
  - c. Covalent
  - d. Metallic

Answer .....

- XV. The electronic configuration of chlorine is
- a. 2,8,2
  - b. 2,8,5
  - c. 2,8,7
  - d. 2,8,1

Answer .....

- XVI. Which of the following properties does not depend on periodicity
- a. Specific heat
  - b. Ionization energy
  - c. Atomic radius
  - d. electro negativity

Answer .....

- XVII. The pair of element with the largest size
- a. Mg and Ca
  - b. O and S
  - c. K and Na
  - d. He and Ne

Answer .....

- XVIII. Which of the following is **NOT** an example of crystalline solid
- a. Iron
  - b. Copper
  - c. Rubber
  - d. Sodium chloride

Answer .....

- XIX. The formula for magnesium bromide is
- a. MgBr
  - b. MgBr<sub>2</sub>
  - c. MgBr<sub>3</sub>
  - d. Mg<sub>2</sub>Br

Answer .....

- XX. Elements of group 3 to 12 are known as
- a. Metalloids
  - b. Minerals
  - c. Fuel
  - d. Transition metals

Answer .....

- XXI. Which of the following exists in all the three state of matters?
- a. Metals
  - b. Metalloids
  - c. Non-metals
  - d. All of these

Answer .....

- XXII. Which of the following will decrease across the period?
- a. Ionization potential
  - b. Metallic character
  - c. Electro negativity
  - d. Electron affinity

Answer .....

- XXIII. Which of the following is the alkali earth metals
- a. Aluminium
  - b. Gold
  - c. Sodium
  - d. Magnesium

Answer .....

- XXIV.  $\text{Ca} + 2\text{HCl} \longrightarrow$
- a.  $\text{CaCl}_2$
  - b.  $\text{H}_2$
  - c.  $\text{CaCl}_2 + \text{H}_2$
  - d. None of these

Answer .....

- XXV. Which of the following is NOT a amorphous solids?
- a. Rubber
  - b. Plastics
  - c. Glass
  - d. Iron

Answer .....

**Question 2: Fill in the blank by writing suitable words (1×5 =5)**

- a. Ionic compounds are highly soluble in .....
- b. There are ..... bonds in nitrogen molecules
- c. Alkali metals are strong .....agents
- d. The horizontal rows are called .....
- e. Mixture of argon and .....is used in gas filled electric lamps

**Question 3: State whether the following statements are true or false (1×5 =5)**

- a. Except lead, all metals are solids

.....

- b. Electronic configuration of phosphorus is 2,8,5.

.....

- c. Electron affinity of noble gas is Zero.

.....

- d. Atoms of all elements follow octet rule

.....

- e. Covalent compounds are good conductor of electricity

.....

**Question 4: Match the items of column 1 with the corresponding items of column 2. Rewrite the correct matching pair. (1×5 =5)**

Column 1	Column 2	Write the correct matching pair
i. ionic compounds usually exist in	a. Non-metals	
ii. loss of electron indicates	b. Helium	
iii. forms negative ions by gaining of electrons	c. Increases down the group.	
iv. Not soluble in blood	d. Formation of cation	
v. Density of alkali metals	e. Solid states	

**Question 5: Short answer questions (10 marks)**

a. Explain why Lithium is covalent in nature? (2)

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 .....  
 .....  
 .....  
 .....

b. Why Sodium chloride gets wet in rainy seasons? (2)

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 .....  
 .....  
 .....

c. State modern periodic law (2)

.....  
 .....  
 .....

d. Discuss the trend of the following ( $1 \times 2 = 2$ )

i. Atomic size in a group

.....  
.....

ii. Ionization enthalpy in a period

.....  
.....  
.....

e. Why alkali metals are kept in kerosene? (2)

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.....  
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**Section B (50 marks)**

**Attempt any five questions**

**Question 6.**

**a. Some elements of the periodic table are represented by the letters A to E in a simplified way in the table given below.**

<b>A</b>	<b>B</b>																<b>D</b>		
							<b>C</b>												<b>E</b>

Choose from A to E. ( $1 \times 5 = 5$ )

i. A noble gas

.....  
.....



ii. A halogen

.....  
.....

iii. The most reactive metal

.....  
.....

iv. The most reactive non-metal.

.....  
.....

v. Transition metal

.....  
.....

b. Why are group 1 elements called as alkali metals? (2)

.....  
.....  
.....

c. Define : (1\*3=3)

i. Valence electron

.....  
.....  
.....

ii. Ionization energy

.....  
.....  
.....

iii. Atomic size

.....  
.....

**Question 7**

a. What is periodicity? (1)

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.....  
.....

b. What is the cause of periodicity? (1)

.....  
.....  
.....

c. Write the uses of the following: (2)

i. Helium

.....  
.....  
.....

ii. Radon

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.....

d. Write down the electronic configuration of following elements. (2)

i. Sodium

.....  
.....

ii. Chlorine

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.....

iii. Draw the atomic structure of each elements (2)

e. Write down two characteristics of periods? (2)

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**Question 8**

a. Differentiate between anion and cation with example each. (3)


b. What is coordinate bond? (2)

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.....

c. Define the following: (1\*3=3)

i. Chemical bond.

.....  
.....  
.....

ii. Dipole-dipole force

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.....  
.....

iii. Atomic number

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.....

d. Explain why alkali metals impart a characteristic colour of the flame. (2)

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**Question 9**

a. Atomic numbers of the elements of 3<sup>rd</sup> period of modern periodic table are listed below. Study the data carefully and answer the questions that follows: (1×5=5)

Period 3 elements	Na	Mg	Al	Si	P	S	Cl	Ar
Atomic Number	11	12	13	14	15	16	17	18

i. Which elements have four valence electrons?

.....  
.....

ii. Which elements have valency equal to 2?

.....  
.....

iii. What is the valency of Aluminium?

.....  
.....

iv. Name the elements which forms amphoteric oxides?

.....  
.....

v. Write the electronic configuration of Argon.

.....  
.....

b. Differentiate between crystalline solid and amorphous solids with example each (3)

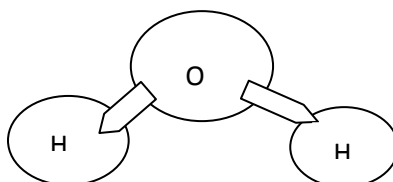
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c. Why is covalent solid called as network solid? Support your answer with example. (2)

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.....

**Question 10**

a. The diagram shows the arrangement of the outermost electrons only in a molecule of water. Observe the diagram and answer the following questions



i. Name the different elements present in the compound.

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.....  
.....

ii. What kind of bond is between the two atoms?

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.....

iii. What other bonds can oxygen atom form?

.....  
.....  
.....

b. Differentiate between ionic bond and metallic bonds? (2)

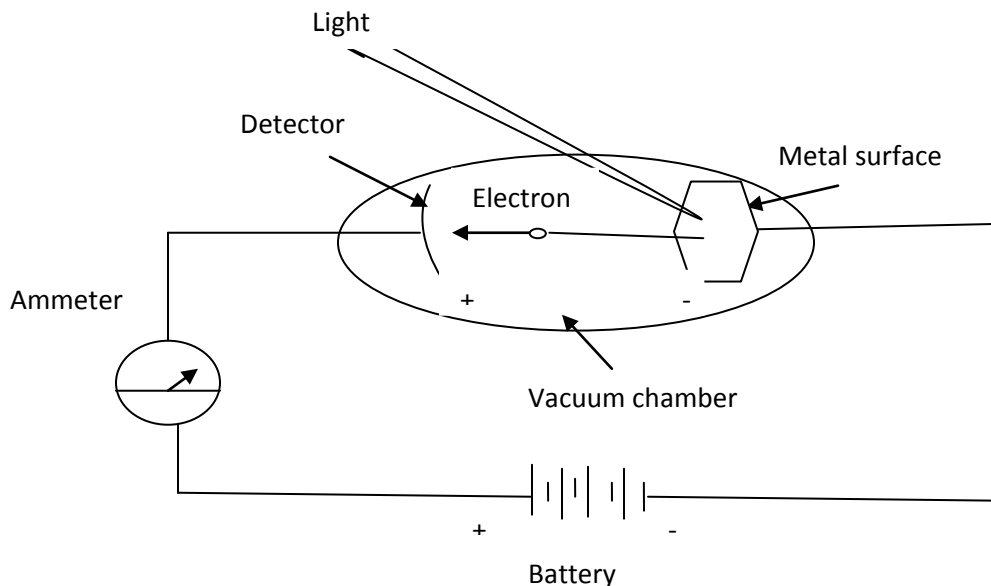

c. Draw the electron dot diagram to show the formation of ammonium ion. (3)

d. What are the two conditions for the formation of coordinate bond? (2)

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**Question 11**

a. study the diagram carefully and answer the following questions



i. What does the diagram represent? (1)

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.....

ii. Explain the process briefly? (2)

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.....  
.....

iii. Which group of elements shows this process? (1)

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.....  
.....

iv. Write one characteristics of the element used in such process. (1)

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.....  
.....

b. Complete the following reaction. (1\*5=5)



**Question 12**

a. The table below shows the proton number of three elements X, Y and Z. use the table to answer the following questions.

Element	X	Y	Z
Proton number	6	8	11

i. Write the electronic configuration of element X, Y and Z. (3)

.....  
.....  
.....  
.....  
.....  
.....

ii. What is the valency of element Z? (1)

.....  
.....  
.....

iii. If the element Y and Z reacts, write down the chemical equation? (1)

.....  
.....



b. Write one uses of activity series of metal? (1)

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.....  
.....

c. What are the differences between metal and non- metal? Support your answer with example each. (3)


d. Why hydrogen is placed in the activity series of metal? (1)

.....  
.....  
.....