

POLYSAT PVT SECONDARY SCHOOL

2024 FORM ONE END OF TERM THREE EXAMINATIONS

CHEMISTRY

(100 marks)

Monday, 15th July

Time Allowed: 2 hours

1:00 – 3: 00pm

Instructions.

1. This paper contains 14 printed pages. Please check!
2. Write your **examination number/name** at the top of each page.
3. This paper has **three** sections **A**, **B** and **C**. In section **A**, encircle the letter representing the correct answer to each question. Section **B** and **C** should be answered in the spaces provided.
4. Answer **all** the **thirty-three** questions.
5. Use of standard electronic calculators is allowed.
6. In the table provided on this page, **tick** against the question number you have answered.

Hand in your paper to the invigilator when time is called to stop writing

Questions Number	Tick if Answered	Do not write in these columns	
1-20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			



SECTION A (20marks)

Answer all the questions in this section

1. Which of the following gases is used for burning?
A. Nitrogen
B. Oxygen
C. Carbon dioxide
D. Neon
2. Calculate the percentage of composition of noble gases in air given that 2g out of 200g of the air comprises of noble gases
A. 1.0%
B. 2.0%
C. 1.5%
D. 2.5%

Element Z has 11 electrons and 12 neutrons. Use it to answer questions that follow

3. What is the electron configuration of the element Z?
A. 2,8,8,5
B. 2,8,1
C. 2,8,2
D. 2,8,8,1
4. What is the mass number of the element Z
A. 12
B. 11
C. 23
D. 22
5. Which of the following are halogens?
A. Li and Na
B. N and P
C. F and Cl
D. D and Ne
6. Which of the following elements is found in all organic compounds?
A. Hydrogen
B. Sulphur
C. Oxygen

- D. Carbon
7. What is the value of X in the chemical equation below?
$$\text{XC}_4\text{H}_{10} + 13\text{O}_2 \longrightarrow 8\text{CO}_2 + 10\text{H}_2\text{O}$$

A. 2
B. 4
C. 8
D. 16
8. Write the value of 0.00507 in standard form
A. 507×10^{-5}
B. 5.07×10^{-3}
C. 50.7×10^{-4}
D. 0.507×10^{-2}
9. Which of the following substances is an element?
A. Carbon dioxide
B. Nitrogen
C. Water
D. Aluminium oxide
10. Which of the following mixtures is heterogenous?
A. Common salt and water
B. Alcohol and water
C. Sodium
D. Magnesium
11. Which branch of chemistry analyses chemical nature and quantity of a substance present in a mixture?
A. Analytical chemistry
B. Biochemistry
C. Industrial chemistry
D. Organic chemistry
12. A positively charged atom has more
A. Electrons than neutrons
B. Proton than electron
C. Protons than neutrons
D. Electron than protons



13. Which of the following can be used to separate a soluble solid from a liquid solvent?
- Filtration
 - Magnetism
 - Evaporation
 - Decantation
14. Which of the following prefixes represent the smallest numerical value?
- Giga
 - Mega
 - Nano
 - Micro
15. What happens to atoms in a chemical reaction?
- They are used up
 - They decompose
 - They gain mass
 - They rearrange
- 16.



What is the name of the apparatus?

- Dropping funnel

- Thistle funnel
 - Filter funnel
 - Separating funnel
17. What is the use of the funnel in (16)?
- Adding liquids into flasks in small quantities
 - Separating immiscible liquids
 - Pouring liquids into containers
 - Filtering solutions
18. Which stage of scientific investigation involves guessing an answer to a problem?
- Identifying a problem
 - Formulating hypothesis
 - Analyzing data
 - Drawing a conclusion
19. What is the SI unit for volume?
- m^3
 - mm^3
 - cm^3
 - dm^3
20. Which of the following fuels belongs to fossil fuels?
- Coal
 - Biogas
 - Charcoal
 - Ethanol

SECTION B (50 marks)

21. (a). give any one natural source of organic compounds _____ (1 mark)
- (b). classify the following as Biofuels or Fossil fuels “ethanol, coal petroleum, natural gas”
- Biofuels _____
- Fossil fuels _____ (4 marks)
22. (a). figure 2 shows an apparatus that is used a laboratory



- i. Name the apparatus _____ (1 mark)
- ii. What is the function of the apparatus? _____ (1 mark)
- (b). calculate the percentage composition of Sulphur in Sulphuric acid (H_2SO_4)
(RAM: H=1, S=32 and O=15)

- (2 marks)
23. When hydrogen reacts with oxygen to form water, the chemical equation is as follows
 $2\text{H}_2(\text{g}) + \text{O}_2(\text{g}) \longrightarrow 2\text{H}_2\text{O}(\text{l})$
- a. Identify the product in the equation _____ (1 mark)
- b. Calculate the mass of oxygen that will be required to convert 3g of hydrogen to water
(RAM: H=1, O=16)

- (3 marks)
24. (a). define the term electron configuration _____ (1 mark)
- (b). draw the atomic structure of oxygen

(2 marks)

©. A certain element is represented as ${}^{32}_{16}\text{X}$

- i. To which group does X belong? Give a reason for your answer

_____ (2 marks)

- ii. Identify element X in the period table

_____ (1 mark)

25. a. define the term laboratory

_____ (1 mark)

- b. give any one importance of laboratory hazard symbols

_____ (1 mark)

- c. state any one application of chemistry in every day life

_____ (1 mark)

- d. distinguish between accuracy and precision

_____ (2 marks)

- b. a. give any two states of matter

_____ (2 marks)

- (b). describe how mass of a liquid can be found

_____ (4 marks)

- c. table 1 shows part of a period table

I	II	III	IV	V	VI	VII	VIII
H					O		Ne
Na						Cl	
	Ca						

- i. what is the valency of Cl? (1 mark)

- ii give one metal in the table (1 mark)

- iii. write a balanced chemical equation for the reaction between the atoms of Na and O

_____ (2 marks)

- c. table 2 shows the results of an investigation

table 2

Time(min)	0	10	20	30
Temperature(°c)	20	30	40	50



a. plot a graph of temperature against time

(4 marks)

b. using the graph, find the temperature when time is 21mins

(1 mark)

d. a. define chromatography?

(1 mark)

b any two applications of chromatography

(2 marks)

c. describe any two applications of fractional distillation

(2 marks)

e. the element P, Q, and R have the following electronic configuration: P(2.2), Q(2.8.2) and R(2.8.8.2)

a. state whether the elements are metals or non-metals

(1 mark)

b. give a reason for your answer

(1 mark)

f. a. define the term diffusion

(1 mark)

b in which state of matter does diffusion take place quickly?

(1 mark)

c. give a reason for your answer in (b)

(4 marks)



SECTION C (30 marks)

- g. a. with the aid of the word equation, describe the changes that hydrated copper (II) sulphate undergoes once heated. (5 marks)

- b. with the aid of well labelled diagram, describe an experiment that can be done to separate colored dyes from a sample of black ink

(5 marks)

- h. with the aid of well labelled diagrams, describe an experiment that could be done to separate the mixture of salt and sand.



 (10 marks)

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- This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.

END OF QUESTION PAPER