

Part 1

30

Circle the correct answer for items (1-15)

1 – What do all organic compounds contain?

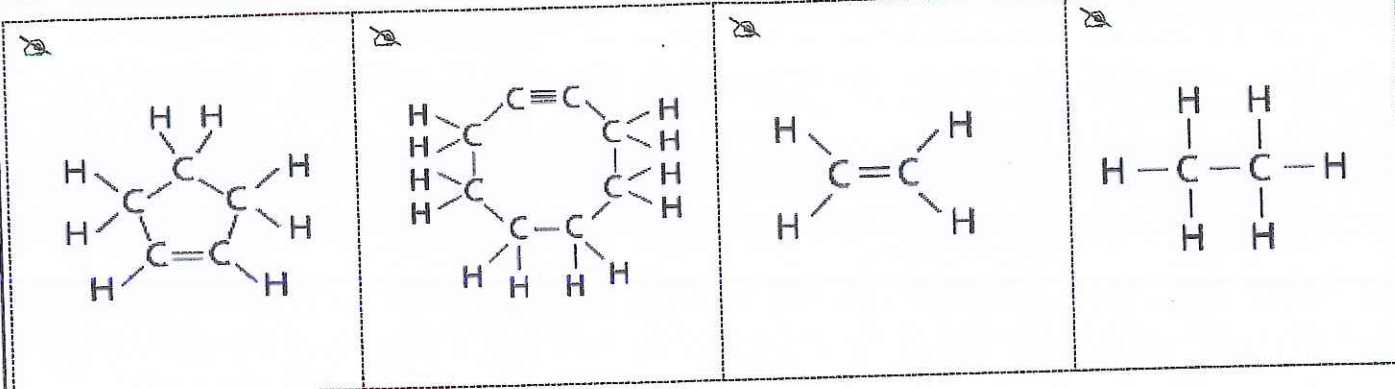
☐ Sulfur

☐ Water

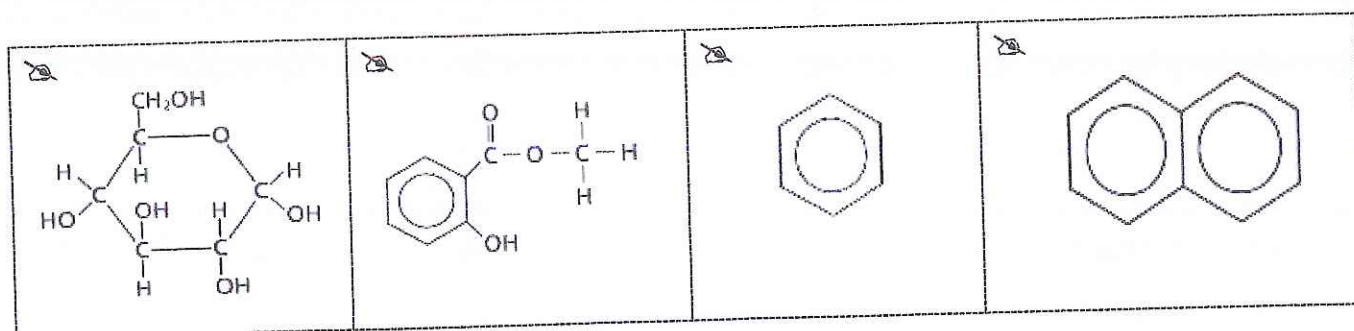
☐ Oxygen

☒ Carbon

2 – Which of the following is a **saturated hydrocarbon?**



3 – Which of the following is **NOT an aromatic Compound?**



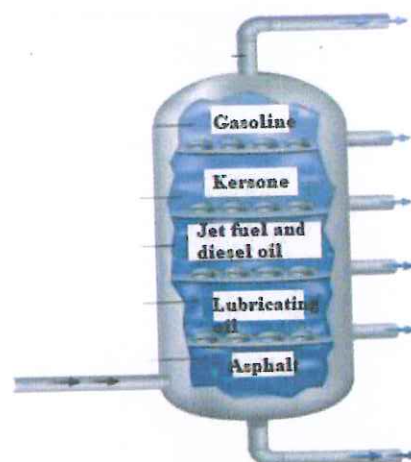
4 – Which crude oil fractions are collected at the **top of a fractionating tower?**

☐ Lower boiling point, larger hydrocarbons

☐ High boiling point, lower hydrocarbons

☐ Lower boiling point, lower hydrocarbons

☒ High boiling point, larger hydrocarbons



Subject	Chemistry	Grade	12	Stream	General	Term	First	Total No of Pages	6
---------	-----------	-------	----	--------	---------	------	-------	-------------------	---

5- What are the small molecules that can combine with itself repeatedly to form a long chain called?

- ☐ Monomers
 ☐ Isomers
 ☐ Plastics
 ☐ Carbohydrates

6- What is the process that uses heat or chemicals to break the long polymer chain into its monomer fragments?

- ☐ Fractionation
 ☐ Isomerization
☐ Depolymerization
 ☐ Saturation

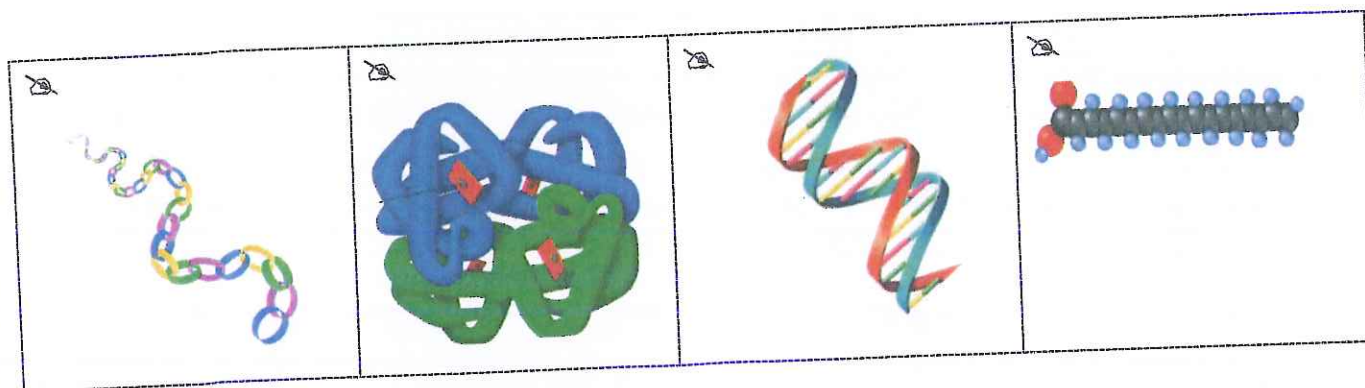
7 – What type of compound is hemoglobin?

- ☐ Carbohydrate
 ☐ Nucleic acid
 ☐ Lipid
 ☐ Protein

8- If a carbohydrate has 12 oxygen atoms, how many hydrogen atoms does it have?

- ☐ 12
 ☐ 24
 ☐ 36
 ☐ 6

9 – Which of these shows the shape of the deoxyribonucleic acid DNA?

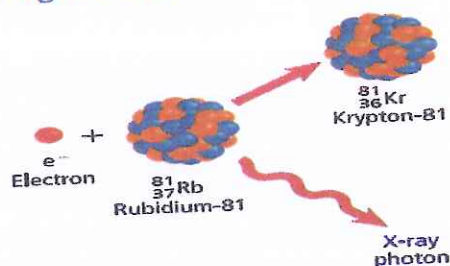


10- What is the function of control rods in a nuclear reactor?

- ☐ Emitte neutrons source
☐ Absorb neutrons released during the reaction
☐ Reflect neutrons back into the core
☐ Heats water that is used to power steam-driven turbines

11- What is the type of radioactive decay shown in the figure below?

- ☐ Alpha decay
- ☐ Beta decay
- ☐ Positron emission
- ☐ Electron capture



12- Which of the following is the correct relationship between mass and energy?

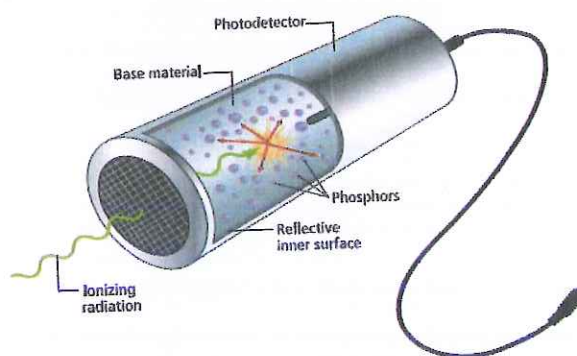
- ☐ $\Delta E = \Delta m c$
- ☐ $\Delta E = \Delta m c^2$
- ☐ $\Delta E = \Delta m \sqrt{c}$
- ☐ $\Delta E = \Delta m^2 c$

13- Which of the following is an example of a nuclear fission reaction?

- ☐ $^{241}_{95}\text{Am} + ^4_2\text{He} \rightarrow ^{243}_{97}\text{Bk} + 2^1_0\text{n}$
- ☐ $^2_1\text{H} + ^3_1\text{H} \rightarrow ^4_2\text{He} + ^1_0\text{n}$
- ☐ $2\text{H}_2\text{O} \rightarrow 2\text{H}_2 + \text{O}_2$
- ☐ $^{235}_{92}\text{U} + ^1_0\text{n} \rightarrow ^{141}_{56}\text{Ba} + ^{92}_{36}\text{Kr} + 3^1_0\text{n}$

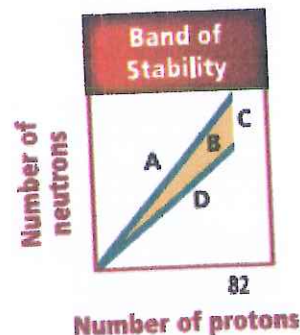
14- What is the device used to detect the presence of ionizing radiation as shown in the figure below?

- ☐ Scintillation counter
- ☐ A Geiger counter
- ☐ A tokamak reactor
- ☐ A nuclear reactor



15 - In the figure below, what region (B) represent?

- ☐ Stable nuclei
- ☐ Nuclei that undergo alpha decay
- ☐ Nuclei that undergo beta decay
- ☐ Nuclei that undergo positron emission



Subject	Chemistry	Grade	12	Stream	General	Term	First	Total No of Pages	6
---------	-----------	-------	----	--------	---------	------	-------	-------------------	---

Part 2

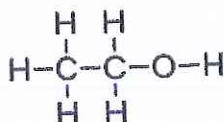
Question 2

25

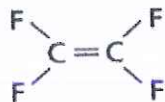
50

 Study this organic compound (A- G), then answer Questions 16-22:

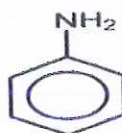
A



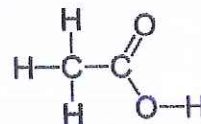
B



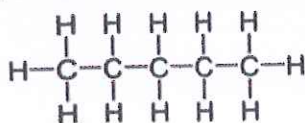
C



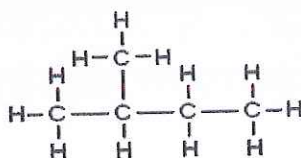
D



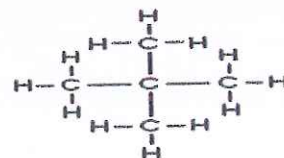
E



F



G



16- What is the name of substituted hydrocarbon represents by (B)?.....

17- Which of the letters represent an amine?.....

18- Which of the letters represent an alcohol?.....

19- What is the letter represents a compound found in vinegar?

20- What is the molecular formula the compounds represented by (E, F, G)?.....

21- Put the letters of compounds (E, F, G) in order from lowest to highest boiling point.

(Lowest boiling point) then then..... (highest boiling point)

22- If we mix compound (A) with compound (D), it produces water and.....

Subject	Chemistry	Grade	12	Stream	General	Term	First	Total No of Pages	6
---------	-----------	-------	----	--------	---------	------	-------	-------------------	---


23- Compare between the types of radioactive decay by complete the following table:

Type of radioactive decay	Symbol	Charge	Mass	Penetrating power
Alpha				
Beta				
Gamma				

24- Calculate how much of an 800.0 mg sample of strontium-90 remains after five half-lives?

Question 2

25

 Match the compound with the correct use by putting the correct letter in the brackets

compound	Use
25- (...) starches	a- added to the natural gas to make people aware of leaks.
26- (...) Esters	b- Weave or knit into durable fabrics such as clothes and ropes
27- (....) Polyesters	c- make flavors and perfumes
28- (.....) Thiols	d- Supply athletes, especially long-distance runners, with high energy
	e- Identify criminals from hair or fluids left at a crime scene.

 Give a scientific explanation for Questions 29-33

29- Scientists have developed methods to accelerate charged particles (particle accelerators)

30- Radioisotopes can be used to follow the course of an element through a chemical reaction.

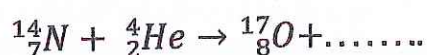
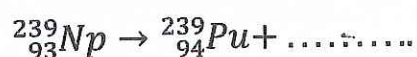
Subject	Chemistry	Grade	12	Stream	General	Term	First	Total No of Pages	6
---------	-----------	-------	----	--------	---------	------	-------	-------------------	---

31-Although there are only **20** common amino acids in nature, there are millions of different proteins.

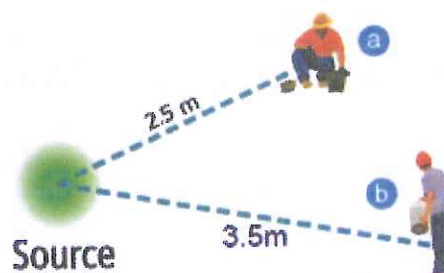
32 – Called aromatic compounds by this name.

33- Nuclear fusion reactions are known as thermonuclear reactions.

34 – Complete the following nuclear equations:



35-Study the figure below, showing the position of two workers near a radioactive gamma source.



- Which of the two workers (a or b) receives more an exposure?
- Write one somatic biological damage at workers.

THE END

