وزارة التربية والتعليم
Ministry of Education

Trimester 1

Chemistry Final revision

Grade 12 G

2019 - 2020

المادة الكيمياء

مدرسة علي بن أبي طالب للتعليم الثانوي

تنبيه : هذا الامتحان يُعد فقط تدريباً ليقيس الطالب مستواه ، و لا يُعتبر مرجعاً للامتحان النهائى بأى شكل من الأشكال
و يجب على كل طالب دراسة المنهج كاملاً كما ورد فى الكتاب المدرسى للحصول على أعلى الدرجات

PREPARED BY

0503417402 Hassan Shehata

Choose the correct answer:

1)Most of the compounds containing the element carbons are ---------- compounds.

a)Organic b)radiant

c)not organic d)rare

2)Which of the following statements explain why there are so many organic compounds?

a)Carbon is a non-metallic element b) The nucleus of the carbon atom contains six protons

c)Carbon has four covalent bonds d)The carbon contains six electrons in the outer energy level

3)What compounds are formed when the COOH group replaces one atom of an atom Hydrogen in the hydrocarbon?

a)Alcohols b)thiolate

c)amines d)Organic acids

4)Which Hydrocarbon substituted that are mainly used in the manufacture of industrial flavors?

a)Esters b)amines

c)halocarbons d)polymers

5)What is called a compound that contains a ring benzene?

a)Primary compound b)saturated compound

c)unsaturated compound d)aromatic compound

6)which a heat-resistant polymer that is used in the manufacture of pipes and hoses?

a) Polyester b)Polyethylene

c)Polyvinyl Chloride d)Polystyrene

7)What biological compounds consist of organic monomers called amino acids

a)Carbohydrates b)proteins

c) lipids d)nucleic acids

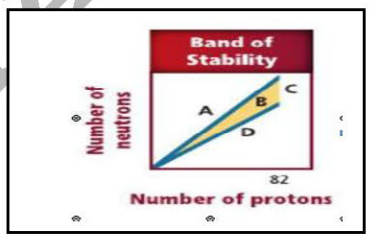
8)What a biological polymer of great importance, which is found in the nuclei of cells and is responsible for encryption Genetic information and storage?

a)Deoxyribonucleic acid (RNA)
b)polysaccharides
c) fats and oils
d)security acids

9)What isotope used to detect thyroid gland related diseases?

a)Iodine - 131
b)Uranium - 235
c)Carbon - 14
d)Hydrogen – 2

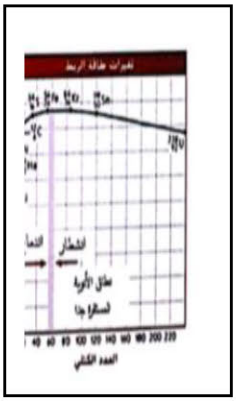
10)In the figure below, in which region are the nuclei characterized by radioactivity and degraded to achieve stability?



a)A only
b)D only
c)A and D
d)B and A

11)The graph below represents the binding energy of each nucleus versus the mass number Which of the following is true?

a)Light nuclei get stabilized by nuclear fission
b)Heavy nuclei get stabilized by nuclear fusion
c)Elements with a mass number approaching 60 are more stable
d)The stability of the nucleus increases with less binding energy per nucleus



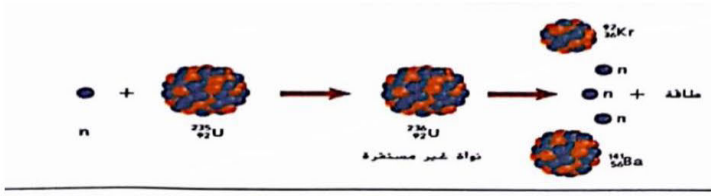
12)What is used to detect and measure radiation levels?

a)Magnetic Resonance
b)Tokamak Reactor
c)Geiger Counter
d)Nuclear Reactor

13)Which of the following is not an example of the use of radiation in the treatment of diseases?

a)Positron emission tomography
b)Analysis of the mechanisms of interaction in complex interactions
c)The use of radiation in the treatment of cancer
d)Use of radioisotopes in treatment

14)What operations represent A and B shown in the table below?

	A
$4\,{}^{1}_{1}H \longrightarrow 2\beta + {}^{4}_{2}He +$ طاقة	B

a)A represents fission B represents fusion b)A represents fusion B represents fission

c)Both of them represent fission d)Both of them represent fusion

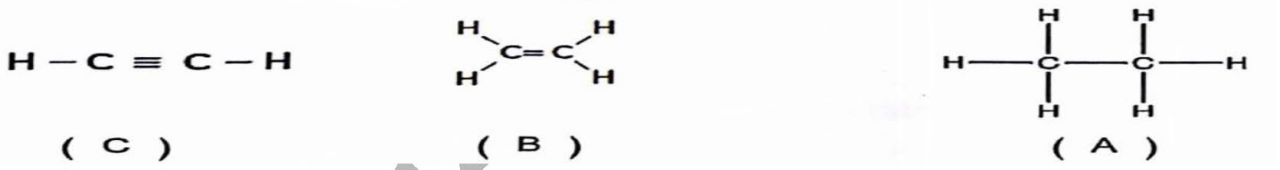
15)Why boron or cadmium electrodes are used in nuclear fission reactors?

a)to absorb alpha rays b)to protect people from radiation

c)to provide chemical combustion d)to absorb the resulting neutron

Question (2)

A)Study the following formulas and answer the questions:



16)Which of the following compounds express saturated hydrocarbons? ( )

17)Which of the following compounds used in the manufacture of welding torches? ( )

18)What is the name of B compound? ( )

19)Why don't we consider these three compounds as isomers?

.....

B) The tower shown in the corresponding figure was used to separate the hydrocarbons forming the crude oil

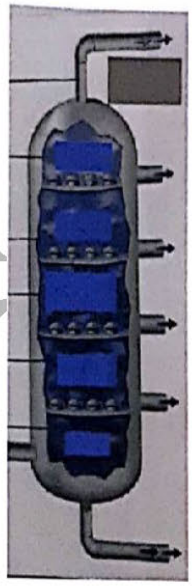
20)What is this method of separation called……

21)What is the correct order for the compound listed in the following table as they exit from tower from top to bottom?

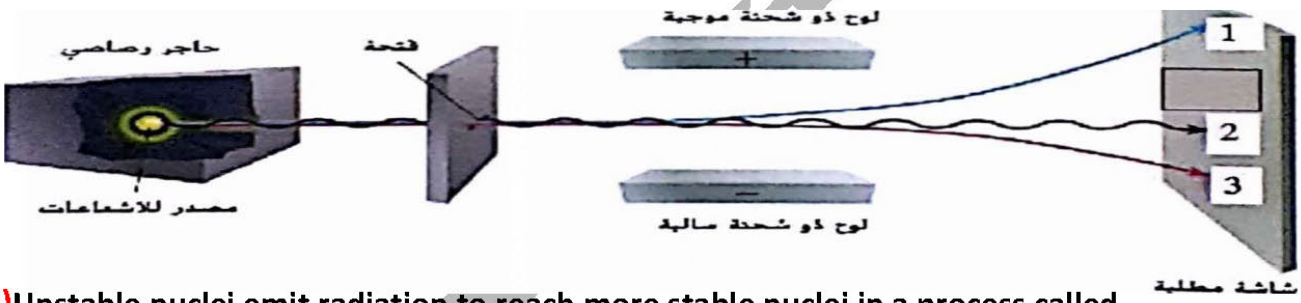
compound	Fuel for jet engines	Kerosene	Asphalt	Lubricating oil
Boiling point	250-400	175-275	Above 350	Above 300

Rank the crude oil from the top of the tower to the bottom

---------- ---------- ---------- ----------



C) Use the figure below to complete the spaces in from question 22 to 26.



22)Unstable nuclei emit radiation to reach more stable nuclei in a process called

……

23)What rays have deviated to point 1

……

24)What rays reached the point 2

……

25)What rays have deviated to point 3

……

26)Why were not rays affected by electric field that reached point 2

……

Hassan Shehata 0503417402

Question (3)

27)Solve the following problem:

If 25.0 g of the Strontium-90 sample remains after four half-lives.
How much quantity Initial of Strachium-90?

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

28) Fill in the blanks with correct scientific terms:

1)Process involving the bombing of nuclei with exponentially expensive particles (.....)

2)High enough energy radiation to ionize the material in which it collides (.....)

3)The mass sample is sufficient to sustain the chain reaction (.....)

4)Organic compounds are formed by replacing one or more hydrogen atoms in a hydrocarbon atom or group of atoms with other elements (.....)

5)Complex molecules that make up DNA and contain one of four organic bases, sugar anda phosphate group (.....)

29) Fill in the number of the following compounds with its use in the table below.

Compound	Usage
1)Polyethylene	It gives grapefruit its distinctive smell(.....)
2)Tetrafluoroethene	They form many tissues in the body such as muscles, hair and nails(.....)
3)Sugars	The raw material in the manufacture of non-stick layers in cooking utensils(.....)
4)Naphthalene	Supports the body energy immediately after ingestion(.....)
5)Proteins	Used in the manufacture of plastic bags and bottles(.....)
6)Thiol	Used in the manufacture of moth balls(.....)

30) Explain:

1)**Natural gas companies add small amounts of thiol to the gas in the cylinders**

.....

.....

2)**Petroleum is called fossil fuel.**

.....

.....

3)**High level of saturated fat in the diet is harmful to human health.**

.....

.....

4)**Nuclear fusion is a promising source of energy.**

.....

.....

5)**Although there are strong electrostatic repulsion forces between protons, all nuclei remain united by dense nuclei.**

.....

.....

31)Complete the blanks to compare chemical and nuclear reactions

Comparison	Chemical reactions	Nuclear reactions
What's included?	.....	.....
Associated energy changes	.....	.....
Reactive atoms change	Atoms retain the same identity	.....

32) Complete the following nuclear equations

$^{14}_{6}C \rightarrow {}^{14}_{7}N + \ldots\ldots\ldots\ldots$

$^{14}_{7}N + {}^{4}_{2}He \rightarrow {}^{17}_{8}O + \ldots\ldots\ldots\ldots$

$^{1}_{0}n \longrightarrow \ldots\ldots\ldots + {}^{0}_{-1}\beta$

$^{16}_{8}O + {}^{1}_{1}P \longrightarrow {}^{13}_{7}N + \ldots\ldots\ldots\ldots$

$^{9}_{4}Be + {}^{2}_{1}H \longrightarrow {}^{10}_{5}B + \ldots\ldots\ldots$

$\ldots\ldots\ldots\ldots \rightarrow {}^{206}_{82}Pb + {}^{4}_{2}He$

$^{14}_{6}C \rightarrow {}^{14}_{7}N + \ldots\ldots\ldots\ldots$

An unknown radioisotope exhibits 8540 decays per second. After 350.0 min, the number of decays has decreased to 1250 per second. What is the half-life?

WITH MY BEST WISHES

MR/HASSAN SHEHATA

0503417402

ANSWER THE NEXT QUESTIONS

1-what is the change in atomic number in alpha decay?

-1 +1 -2 +2

2-who is the scientist that discovered the phosphorescent?

Roentgen isomers Marie curie Becquerel Pierre curie

3-what is the conversion of element to another element by releasing radiation?

Hydrogenation inducing radioactive decay radioactivity

4- what is the charges of Alpha particles?

-1 +1 +2 - 2

5- what is the change in atomic number in electron capture decay?

-2 +1 -1 +2

6- how can we block gamma rays?

By paper by metal foil by wood by lead

7-why does beta particles deflected toward the positively charge plate?

It is positive it is neutral has no charge it is negative

8-which radiation is responsible about lose energy in nuclear reaction?

Alpha beta capture gamma

9- what is the composition of gamma?

Electrons protons neutrons photons

10-which answer describe $^{210}_{84}Po$?

Stable not radioactive very stable unstable

11- what is the function group of alcohols?

Hydroxide hydroxyl hydrazine hydrates

12-whar are the compounds that they have similar chemical formula and different structure?

Amino acids isomers polymers monomers

13-which substituted hydrocarbon has COOC group?

Esters alcohols amines organic acids

14- what is the name of the monomers of poly vinyl chloride

Ethylene propylene chlorine vinyl chloride

15- which compound is inorganic?

Alcohols carbonate esters thiols

16- which model is more realistic?

Space filling chemical formula structural formula stick and ball

17- what is the name of C_8H_{14}?

Heptane octane octene octyne

18- which compound is unsaturated?

Butane hexane hexene pentane

19 - which substituted hydrocarbon has COOH group?

Esters alcohols amines organic acids

20 - which substituted hydrocarbon is used in the making of non-stick pan?

Tetra chloro ethen Tetra fluro ethen Tetra bromo ethen tri chloro ethen

21 - what is the name of the separation method of petroleum?

Fractional distillation hydrogenation oxidation halogenation

22 - which compounds come from down the tower?

Light gases light liquids heavy liquids solids

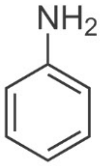
23- which substituted hydrocarbon is used in the dry cleaning?

Tetra chloro ethen Tetra fluro ethen Tetra bromo ethen tri chloro ethen

24- why do we have a large number of organic compounds?

Carbon has 4 covalent bonds carbon has 4 protons carbon has 4 neutrons all are correct

25- what is the name of this compound?



Benzene naphthalene gasoline aniline

26- which compound is used in flavorous?

Esters alcohols amines organic acids

27- what is the functional group of thiol?

COOH NH2 OH SH

28 COMPLETE THE NEXT TABLE

	Alpha	Beta
What it is ?		
Charge		
Penetrating power		

QUESTION 29 SOLVE

If the passing of five half-lives leaves 25.0 mg of a strontium-90 sample, how much was present in the beginning?

.....

The half-life of polonium-218 is 3.0 min. If you start with 20.0 g, how long will it be before only 1.0 g remains?

A worker stands near a machine that uses a cobalt-60 gamma source to sterilize medical equipment. The worker's dose 2.0 m from the source is 0.85 mrem/s•m^2. What is the worker's dose at a distance of 3.5 m?

QUESTION

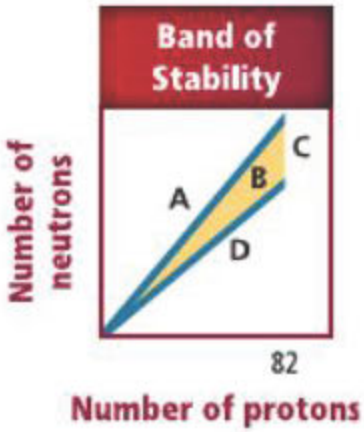
In which region(s) in **Figure** are you likely to find

a. stable nuclei?

b. nuclei that undergo alpha decay?

c. nuclei that undergo beta decay?

d. nuclei that undergo positron emission?

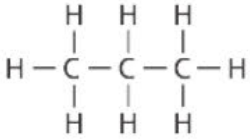


MULTIPLE CHOICE

Record your answers on the answer sheet provided by your teacher or on a sheet of paper.

1. What atoms make up a hydrocarbon molecule?
- **A.** oxygen, carbon, and hydrogen
- **B.** nitrogen and carbon
- **C.** carbon and hydrogen
- **D.** oxygen and hydrogen

Use the figure below to answer questions 2 and 3.



2. What is the chemical formula of the compound shown above?
- **A.** C_3H_3
- **B.** CH_8
- **C.** C_6H_6
- **D.** C_3H_8

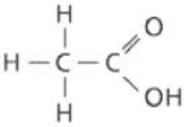
3. What is the name of this compound?
- **A.** propane
- **B.** heptane
- **C.** isoprene
- **D.** methane

4. Which of these contains carbon, hydrogen, and oxygen, and has twice as many hydrogen atoms as oxygen atoms?
- **A.** hydrocarbon
- **B.** carbohydrate
- **C.** alcohol
- **D.** isomer

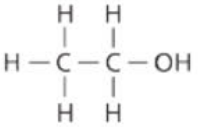
5. Which of the following is not a polymer derived from petroleum?
- **A.** polypropylene
- **B.** acetylene
- **C.** polyethylene
- **D.** polystyrene

6. Which of the following is a type of recycling that breaks up the polymers into their original monomers?
- **A.** fractionation
- **B.** depolymerization
- **C.** isomerization
- **D.** saturation

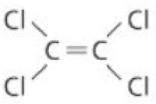
Use the figure below to answer question 7.



Ethanoic acid
CH_3COOH



Ethanol
C_2H_5OH



Tetrachloroethene
C_2Cl_4

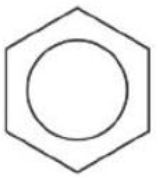
7. What is true of all three of these compounds?
- **A.** Their basic structural unit is a benzene ring.
- **B.** They are inorganic compounds.
- **C.** They are substituted hydrocarbons.
- **D.** They are polymers.

8. Which of these compounds is an alcohol that is often obtained from corn?
- **A.** ethanol
- **B.** acetic acid
- **C.** tetrachloroethene
- **D.** ethane

9. Which of these best shows the shape of the nucleic acid DNA?

A.

C.



B.

D.

How would you describe a benzene ring?

A rare
B stable
C unstable
D saturated

What are the small units that make up polymers called?

A monomers
B isomers
C plastics
D carbohydrates

What type of compound is hemoglobin?

A carbohydrate
B lipid
C nucleic acid
D protein

What type of compounds form the DNA molecule?

A amino acids
B nucleotides
C polymers
D carbohydrates

Glucose and fructose both have the formula $C_6H_{12}O_6$. What are such compounds called?

A amino acids
B alcohols
C isomers
D polymers

If a carbohydrate has 16 oxygen atoms, how many hydrogen atoms does it have?

A 4
B 8
C 16
D 32