Philadelphia University
Faculty: Science
Department: Basic sciences
Exam time 50 min .
Date: 21/ 03/ 2019

General chemistry 0212101
First exam

Name: $\qquad$ Student No. : $\qquad$

Section: $\qquad$ Professor Name: $\qquad$
Q. 1 ( 1 points each)

Direction: 2 Each of the question bellow is followed by four suggested answers. Select the one that is best in each case and type it in the above table.

| $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{4}$ | $\mathbf{5}$ | $\mathbf{6}$ | $\mathbf{7}$ | $\mathbf{8}$ | $\mathbf{9}$ | 10 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |  |  |  |  |  |

Useful data: Avogadro's No = $6.022 \times 10^{23}, \quad 1 \mathrm{~kg}=1000 \mathrm{~g}, \mathrm{~g}=1000 \mathrm{mg}, 1 \mathrm{~L}=1000 \mathrm{ml}, 1 \mathrm{ml}=$ $1 \mathrm{~cm}^{3}$

| $\underset{\text { Hydrogen }}{\mathbf{H}}$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | (\% |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| (in |  |  |  |  |  |  |  |  |  |  |  |  | $\underset{\substack{\text { Cataon } \\ \text { 120.0 }}}{\substack{c}}$ | $\stackrel{7}{\mathbf{N}} \underset{\substack{\text { Nutroen } \\ 14.00 n}}{ }$ | $\underset{\substack{\text { Oxygen } \\ \text { 16.00 }}}{8}$ | $\underset{\substack{\text { Futurine } \\ 19.00}}{\stackrel{9}{F}}$ |  |
|  | $\begin{array}{\|c\|} \hline 12 \\ \hline \mathbf{M g} \\ \hline \end{array}$ |  |  |  |  |  |  |  |  |  |  | $\begin{aligned} & 13 \\ & \text { AI } \end{aligned}$ | $\begin{array}{\|c\|c\|} \hline 14 \\ \substack{\text { siluon } \\ 28.00} \end{array}$ | $\begin{aligned} & 15 \\ & \mathbf{P} \end{aligned}$ | $\underset{\substack{16 \\ \text { sulur } \\ 32.07}}{\substack{1 \\ \hline}}$ | $\begin{gathered} 17 \\ C l \end{gathered}$ | ${ }^{18} \mathrm{Ar}$ <br> Ar |
| $\begin{array}{\|c} 19 \\ \hline \text { Potassum } \\ 39.10 \end{array}$ |  | $\begin{gathered} 21 \\ \begin{array}{c} 21 \\ \text { Scandium } \\ 44.96 \end{array} \\ \hline \end{gathered}$ | $\begin{gathered} 22 \\ \hline \text { Thinium } \\ \text { Th7. } \\ 477 \end{gathered}$ | $\begin{gathered} \mathrm{V}_{\substack{23 \\ \text { Vanaum } \\ \text { So.94 }}} \end{gathered}$ |  | 25 $\mathbf{M n}$ <br> anganese 54.94 |  | $\begin{gathered} \text { Cob } \\ \substack{\text { cobat } \\ \text { co. }} \end{gathered}$ | $\begin{aligned} & 28 \\ & \mathrm{Ni} \end{aligned}$ $\begin{aligned} & \substack{N(N) \\ 58.69} \end{aligned}$ | $\begin{gathered} \text { Cou } \\ \substack{\text { Copoer } \\ 63.50} \end{gathered}$ | $\begin{gathered} 30 \\ \text { Zn } \\ \text { Zninc } \\ 65.39 \end{gathered}$ | $\begin{gathered} 31 \\ \text { Gat } \\ \text { Galum } \\ 69.72 \\ \hline \end{gathered}$ | $\begin{aligned} & 32 \\ & \mathrm{Ge} \end{aligned}$ | $\begin{gathered} 33 \\ \hline \begin{array}{c} 3 s^{2} \\ \text { Afsenic } \\ 74.92 \end{array} \end{gathered}$ | $\begin{gathered} 34 \\ \substack{30 \\ \text { Solenum } \\ 7.890} \end{gathered}$ | $\begin{gathered} 35 \\ \hline \text { Br } \\ \begin{array}{c} \text { Bioning } \\ 79.000 \end{array} \end{gathered}$ |  |
|  |  | $\begin{gathered} 39 \\ \substack{\text { Y trtum } \\ 8.909} \end{gathered}$ | $\frac{40}{\mathrm{Zr}}$ | $\begin{array}{\|c} \substack{41 \\ \text { Nb } \\ \text { Nobum } \\ \text { Noposin }} \end{array}$ | $\begin{aligned} & 42 \\ & \text { Mo } \end{aligned}$ $\begin{aligned} & \text { olybdenun } \\ & 95.94 \end{aligned}$ | $\begin{aligned} & 43 \\ & \mathrm{Tc} \end{aligned}$ | $\frac{44}{44}$ | $\begin{array}{\|c} \substack{45 \\ \text { Rhodum } \\ \text { Rnocum } \\ \text { nop }} \end{array}$ |  | $\begin{aligned} & \text { Ag } \\ & . \end{aligned}$ |  | $\begin{aligned} & \text { In } \\ & \substack{\text { lndum } \\ \text { ndu } \\ 14.82} \end{aligned}$ | $\begin{aligned} & \text { mo } \\ & 50 \\ & \text { Sn } \end{aligned}$ |  | $\begin{aligned} & 52 \\ & \hline \end{aligned}$ | $\begin{gathered} 53 \\ 1 \\ \text { (oane } \\ 126.90 \end{gathered}$ |  |
| $\begin{array}{\|c} 55 \\ \hline \text { Cs } \\ \text { Cosum } \\ 132.91 \end{array}$ | $\begin{aligned} & 56 \\ & \text { Ba } \end{aligned}$ $\begin{aligned} & \text { Barium } \\ & 137.33 \end{aligned}$ | $\begin{aligned} & 57 \\ & \hline \mathrm{La} \end{aligned}$ $\begin{aligned} & \text { Lanthanum } \\ & 138.91 \end{aligned}$ | $\begin{gathered} 72 \\ \begin{array}{c} 7 \text { Hatum } \\ 178.49 \end{array} \\ 108 \end{gathered}$ | $\begin{array}{\|c\|c\|} \hline 73 \\ \hline \text { Tanaum } \\ \text { Tanal } \\ \hline 10.95 \end{array}$ |  | $\begin{array}{\|c\|c} 75 \\ \hline \text { Re } \\ \text { Rhenum } \\ \text { Reno.21 } \end{array}$ | $\begin{array}{\|c} \hline \begin{array}{c} 76 \\ \text { Osenum } \\ \text { 190.23 } \end{array} \\ \hline \end{array}$ | $\begin{array}{\|c\|c\|} \hline 77 \\ \text { lir } \\ \text { ligum } \\ 192222 \end{array}$ | $\begin{gathered} 78 \\ \hline \text { Platioum } \\ \text { Ptan } \\ \text { 159.08 } \end{gathered}$ | $\begin{aligned} & 79 \\ & \mathrm{Au} \end{aligned}$ $\begin{gathered} \text { coud } \\ 1960.90 \end{gathered}$ | $\begin{gathered} 80 \\ \mathrm{Hg} \\ \mathrm{Heg} \\ \text { Meour } \end{gathered}$ | $\begin{gathered} \substack{81 \\ \text { Thatum } \\ \text { That } \\ 20438} \end{gathered}$ | $\begin{aligned} & 82 \\ & \mathrm{~Pb} \end{aligned}$ coad | $\begin{array}{\|c\|c\|} \hline 83 \\ \begin{array}{c} 83 \\ \text { Bisnum } \\ \text { 2080.98 } \end{array} \end{array}$ | $\begin{gathered} 84 \\ \substack{80 \\ \text { Polonium } \\ (029)} \end{gathered}$ | $\begin{array}{\|c} 85 \\ \text { At } \\ \text { Atatin } \\ \text { (120) } \end{array}$ | 86 <br> $\begin{array}{c}\text { Rna } \\ \text { Rato } \\ \text { (222) }\end{array}$ |
|  | $\begin{gathered} \substack{\text { Ra } \\ \text { Ratum } \\ (2266)} \end{gathered}$ | $\underset{\substack{89 \\ \text { Actinum } \\ \text { A27 }}}{89}$ | $\begin{aligned} & 104 \\ & \mathbf{R f} \end{aligned}$ | $\begin{aligned} & 105 \\ & \text { Dub } \\ & \text { Dubnum } \\ & (2020 \end{aligned}$ | $\begin{aligned} & 106 \\ & \mathrm{Sg} \end{aligned}$ $\begin{aligned} & \text { paborgiu } \\ & \text { (266) } \end{aligned}$ | $\begin{gathered} 107 \\ \begin{array}{c} \text { Bhanim } \\ \text { Boncim } \\ \text { (264) } \end{array} \\ \hline \end{gathered}$ | $\begin{gathered} 108 \\ \mathbf{c} \\ \mathbf{H a s s i u m} \\ (269) \end{gathered}$ |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  | $\begin{aligned} & \hline 59 \\ & \mathrm{Pr} \end{aligned}$ <br> Praseodymi 140.91 | 60 Nd <br> Neodymurn <br> 144.24 |  |  | $\begin{gathered} \text { Euchum } \\ \substack{\text { Europ } \\ 151.90} \\ \hline \end{gathered}$ |  | $\begin{array}{\|c\|c\|} \hline 65 \\ \text { Tetbum } \\ \text { Tibs.93 } \end{array}$ | $\begin{aligned} & \hline 66 \\ & \mathrm{Dy} \end{aligned}$ |  |  |  |  |  |
|  |  |  |  | $\begin{array}{\|c\|c\|c\|c\|c\|c\|c\|c\|c\|c\|} \hline \text { einum } \\ 90 \end{array}$ | ${ }_{\text {10,91 }}$ | ${ }_{1} 142$ | ${ }_{\text {(145) }}$ |  |  | ${ }^{157} 9$ |  |  |  |  |  | ${ }^{173004}$ |  |
|  |  |  |  | Th | Pa | U | Np | Pu | Am | Cm | Bk | Cf | Es | Fm | Md | No | Lr |
|  |  |  |  | ${ }_{\substack{\text { Therum } \\ \text { 23204 }}}^{\substack{\text { and }}}$ | 231. | ${ }^{\substack{\text { Uranum } \\ \text { U3,03 }}}$ |  | (extoram | (2a3) | ${ }_{\substack{\text { curum } \\ \text { (247) }}}^{\substack{\text { che }}}$ | (247) | (251) | (52) | (e57) | (258) | (isb) | (262) |

## Question one ( 10 Pts)

1- Convert the $50^{\circ} \mathrm{C}$ to Fahrenheit ( ${ }^{\circ} \mathrm{F}$ );
A- 225
B- 150
C- 122
D-100

2- A mixture of oxygen with nitrogen is
A- homogenous
$B$ - heterogeneous
C- element
D- compound
mixture mixture

3- Which one of the following is an nonmetal element?
A-Sc
B- Ge
C- Mg
D- Se

4- $\mathrm{Na}_{2} \mathrm{~S}$ is Called
A- sodium sulfate
B- sodium selenide
C- sodium sulfite
D- sodium sulfide

5-Which ion of the following has $\mathbf{1 0}$ electrons?
A- $\mathrm{Al}^{+2}$
B- $\mathrm{Ca}^{+2}$
$\mathrm{C}-\mathrm{O}^{-2}$
D- $\mathrm{S}^{-2}$

6- The element has the atomic number 48 is
A- Zn
B- Cd
C- Lu
D- La

7- Name an extensive property
A- color
$B$ - boiling point
C- weight
D- density

8- Which one of the following is correct name of Nickel(III)Nitrate
$\mathrm{A}-\mathrm{Ni}_{3} \mathrm{NO}_{2}$
B- $\mathrm{Ni}\left(\mathrm{NO}_{3}\right)_{3}$
$\mathrm{C}-\mathrm{Ni}\left(\mathrm{NO}_{2}\right)_{3}$
D- $\mathrm{NiNO}_{3}$

9- Phosphate group is considered
A- monatomic ion
B- diatomic molecule
C- polyatomic
D- polyatomic ion molecule

10- Which one of the following is an empirical formula
A- $\mathrm{H}_{2} \mathrm{O}_{2}$
B- $\mathrm{C}_{6} \mathrm{H}_{6}$
$\mathrm{C}-\mathrm{Mg}\left(\mathrm{SO}_{3}\right)_{2}$
D- $\mathrm{P}_{4} \mathrm{H}_{10}$

## Question two (3 Pts)

1- Solve the following equations using the correct number of significant figures
A - $(10.003+49.250-2.01) \times 9$
$\left(20.88 \times 10^{9}\right)\left(3.12 \times 10^{-7}\right)$
B -
7.3-4

C- Convert $9.87 \mathrm{Kg} / \mathrm{m}^{3}$ to $\mathrm{mg} / \mathrm{L}$ ?

## Question three (5 Pts)

a- If you have $\mathbf{2 9 . 6} \mathrm{g}$ of potassium (K). Calculate the following?

- Moles of K
- The number of potassium atoms are in 29.6 g .
- The mass of one potassium atom in gram


## Question four( 2 Pts)

How many Hydrogen atoms are in 38.0 g of $\mathrm{C}_{4} \mathrm{H}_{8}$ ?

