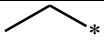
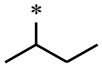
UNIVERSITY OF ZAMBIA
CHEMISTRY DEPARTMENT

CHE 1000: INTRODUCTORY CHEMISTRY

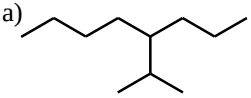
Organic Chemistry Tutorial Sheets
Nomenclature of Alkanes **31ST Oct 2020**
QUESTION ONE

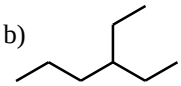
Give **IUPAC** and common names for the following alkyl groups:

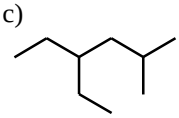
Structural formula of the alkyl group	Skeletal formula of the Alkyl group	*Common name of the alkyl group*	***IUPAC Name***
H_3C—*	—*	*Methyl-*	*Methyl-*
CH_3CH_2—*		*Ethyl-*	
			
			*1-methylethyl-*
			
		*n-butyl-*	
$CH_3CH(CH_3)CH_3$			
$CH_3CH_2CH_2$—*		*n-propyl-*	

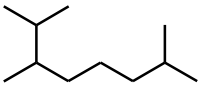
QUESTION TWO

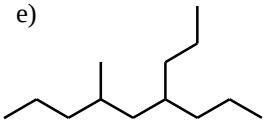
Give the **IUPAC name** of each of the following alkanes:

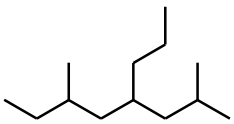
a) 

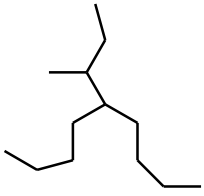
b) 

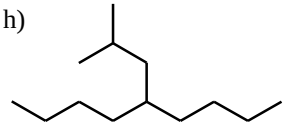
c) 

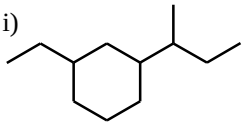
d) 

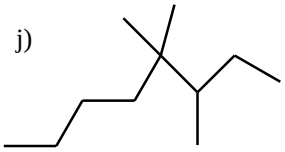
e) 

f) 

g) 

h) 

i) 

j) 

QUESTION THREE

Write the structural formula of the following compounds:

a) 2,2,4-trimethylpentane
b) Cyclopentane
c) 3-methyl-1-butanol
d) 1-methyl-5-ethynylcyclohexa-1,3-diene
e) 1,2-dimethoxyethane
f) Propylbenzene
g) 3,5-dimethyl-4-hexen-1-yne
h) 1,2,3-propanetriol
i) 1,4-pentadiene
j) 2-chloro-5-methylhexanal

QUESTION FOUR

Draw bond-line formula for the following compounds:

a) $(CH_3)_3CCH_2CH_2CH_2CH_2OH$
b) $CH_3CH_2CH(CH_3)CH_2COOH$
c) $CH_3CH(CH_3)CH_2CHCH_2CH_2COOH$
d) $CH_2=CHCH_2CH_2CH=CHCH_3$

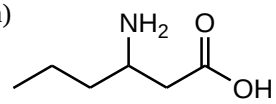
QUESTION FIVE

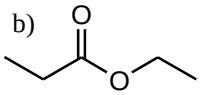
What is incorrect about each of the following names? For each suggest the correct name:

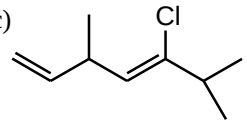
a) 3-pentene
b) 2-methyl-2-butyne
c) 1,2-dimmethylpentene
d) 2-ethylpentane

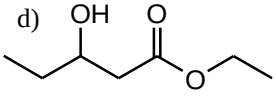
QUESTION SIX

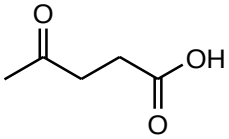
Provide IUPAC names for each of the following polyfunctional compounds:

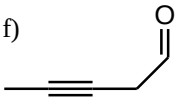
a) 

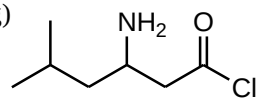
b) 

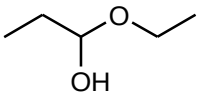
c) 

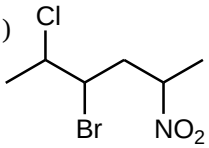
d) 

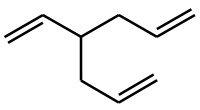
e) 

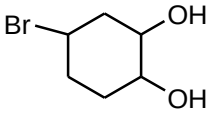
f) 

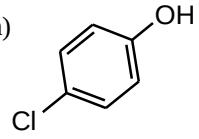
g) 

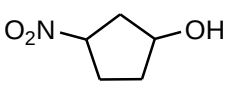
h) 

j) 

k) 

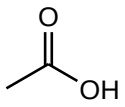
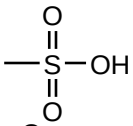
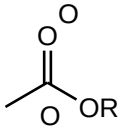
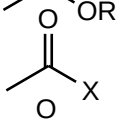
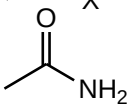
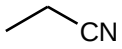
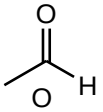
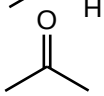
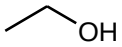
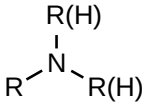
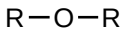
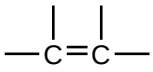
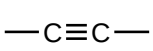
l) 

m) 

n) 

APPENDIX

IUPAC System of Nomenclature: Priority List to Determine the Principal Functional Group

CLASS	FUNCTIONAL GROUP	SUFFIX
Carboxylic acid		-oic acid
Sulfonic acid		-sulfonic acid
Ester		alkyl -oate
Acid halide		-oyl halide
Amide		-amide
Nitrile		-nitrile
Aldehyde		-al
Ketone		-one
Alcohol		-ol
Amine		-amine
Ethers		-ether
Alkene		-ene
Alkyne		-yne