CHAPTER NO

13

AMINES



MCQ'S

1. Introduction Of Amines
2. Classification
3. Isomerism
4. Iupac Nomenclature

LECTURE NO – 3

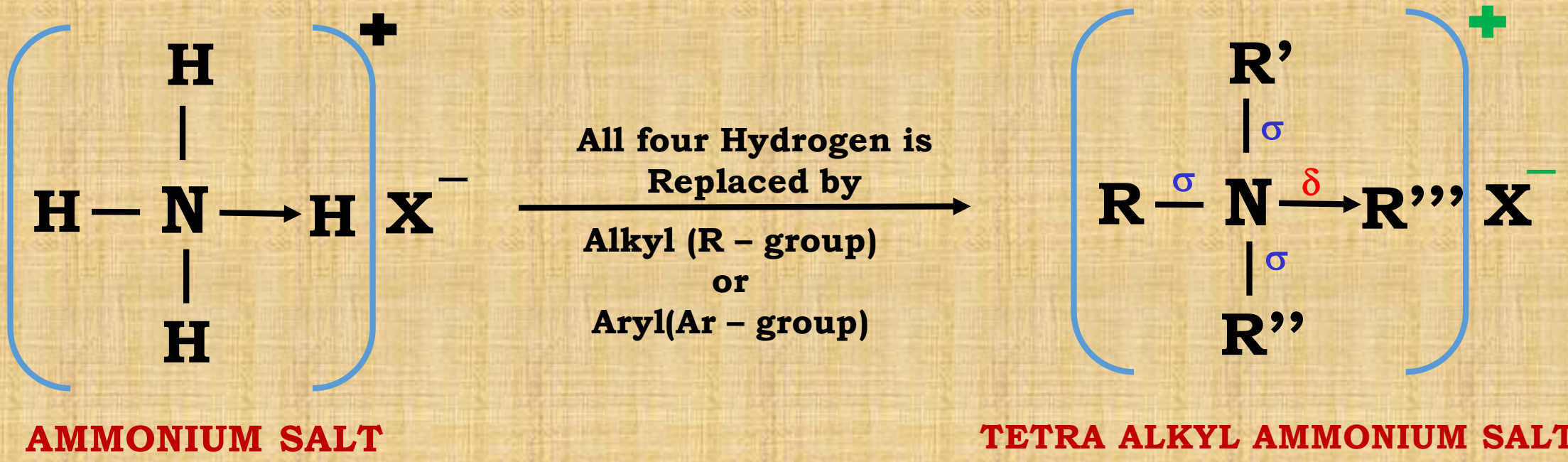
JSK – NP

NOTE

Apart from the three types of amines (1^0,2^0,3^0) , there is another class of compounds known as QUATERNARY AMMONIUM COMPOUNDS.

QUATERNARY AMMONIUM COMPOUNDS/SALTS

It is derivatives of ammonium salts in which all the four (H) Hydrogen atoms are replaced by Alkyl or Aryl groups.



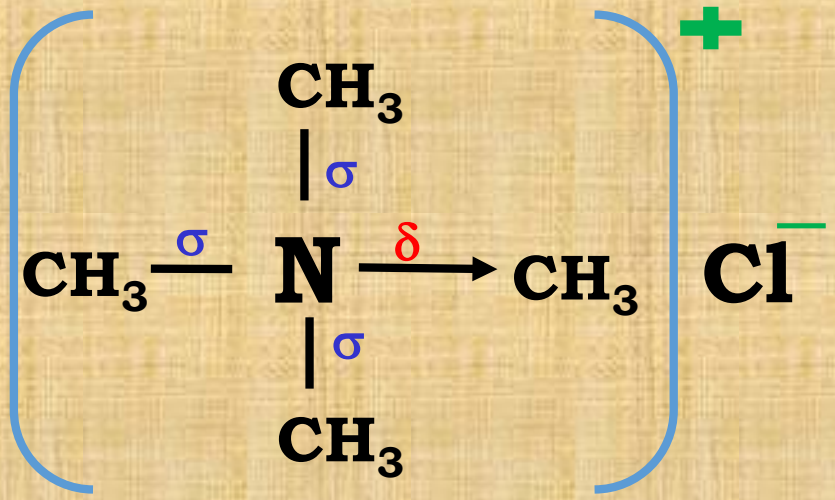
AMMONIUM SALT **TETRA ALKYL AMMONIUM SALT**

QUATERNARY AMMONIUM SALTS HAVE 3 – TYPES OF BOND

1. Covalent Bond = 3 σ
2. Co-ordinate covalent Bond = 1 δ
3. Ionic Bond = 1

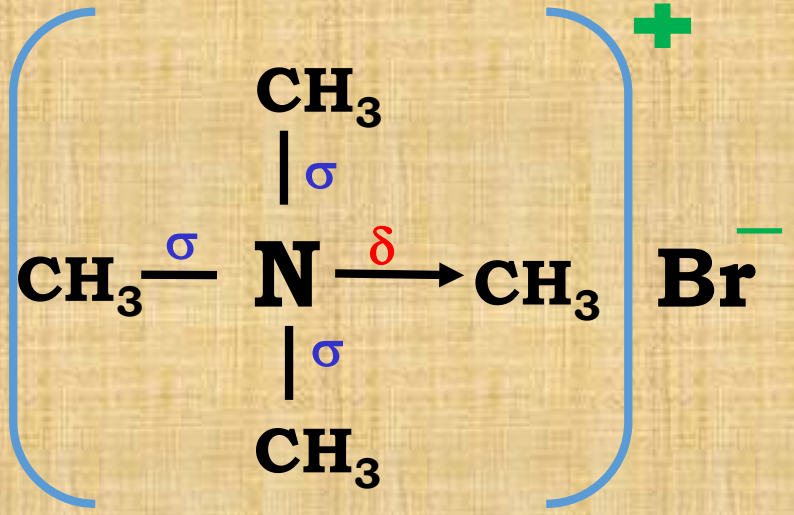
For Example:

1.



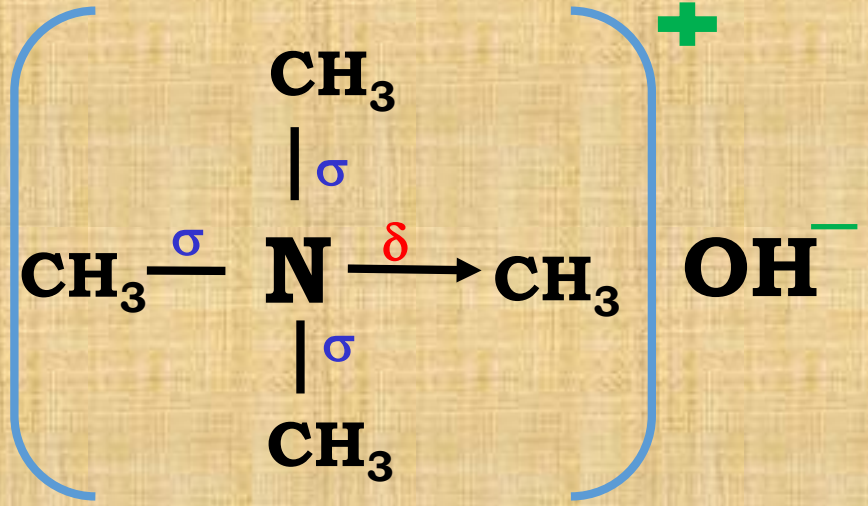
Tetra methyl ammonium chloride

2.



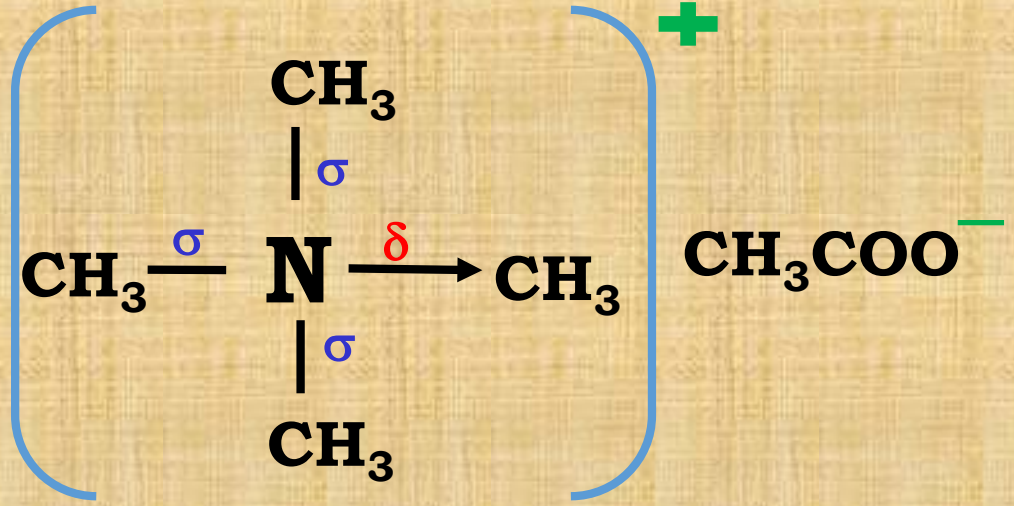
Tetra methyl ammonium bromide

3.



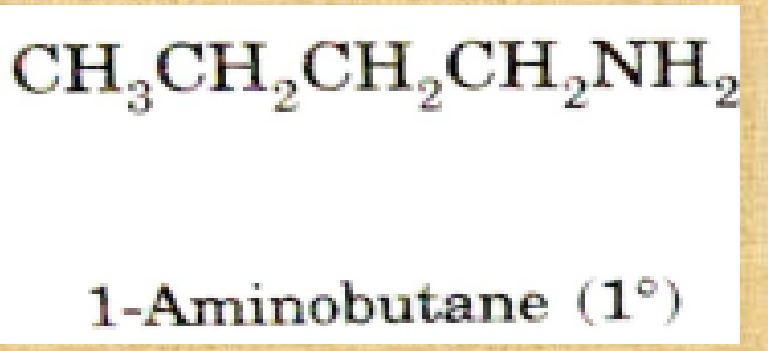
Tetra methyl ammonium hydroxide

4.

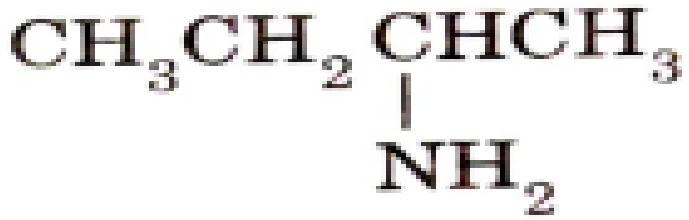


Tetra methyl ammonium acetate

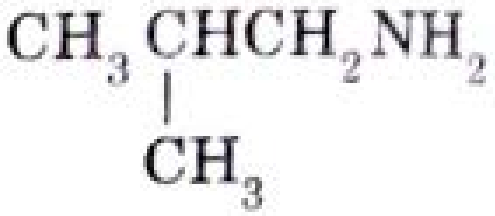
WRITE ALL POSSIBLE ISOMERS OF $C_4H_{11}N$



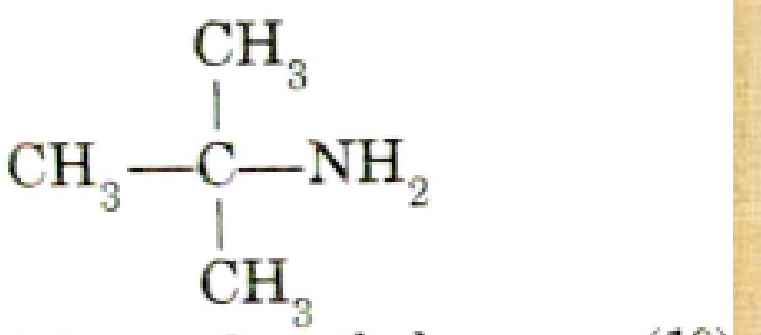
1-Aminobutane (1°)



2-Aminobutane (1°)



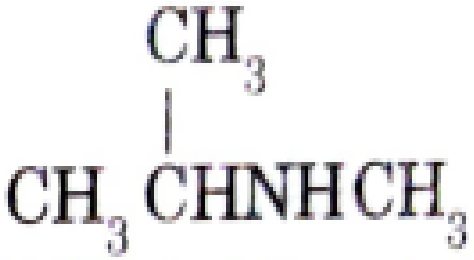
1-Amino-2-methylpropane (1°)



2-Amino-2-methylpropane (1°)



N-Methylaminopropane (2°)



N-Methyl-2-aminopropane (2°)



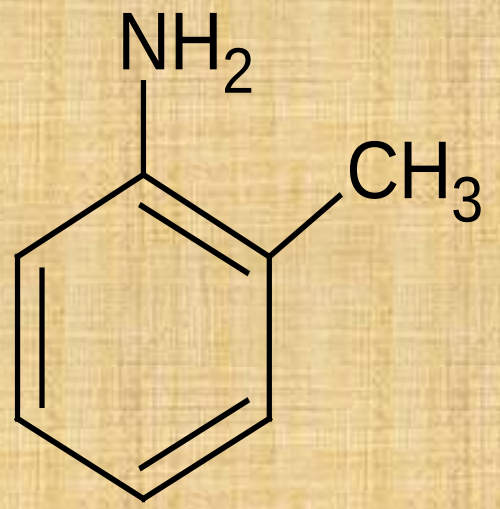
N-Ethylaminoethane (2°)



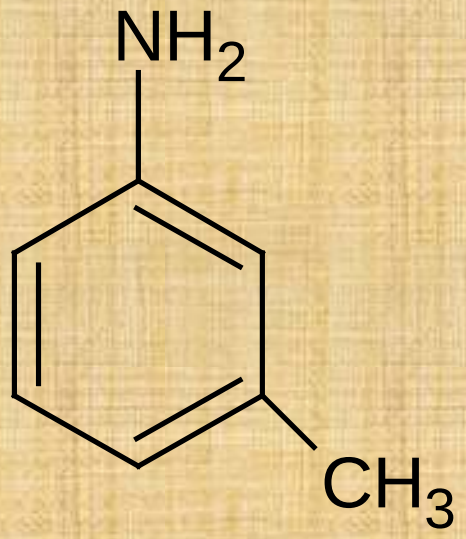
N, N-Dimethylaminoethane (3°)

8

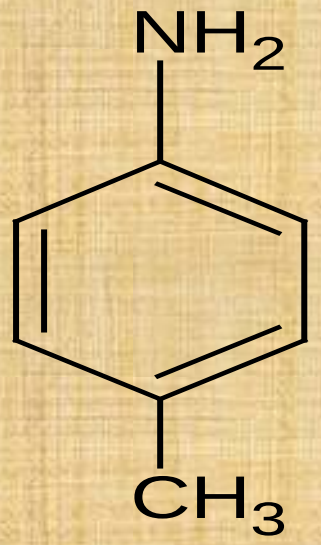
WRITE ALL POSSIBLE ISOMERS OF C_7H_9N THAT CONTAINING BENZENE RING



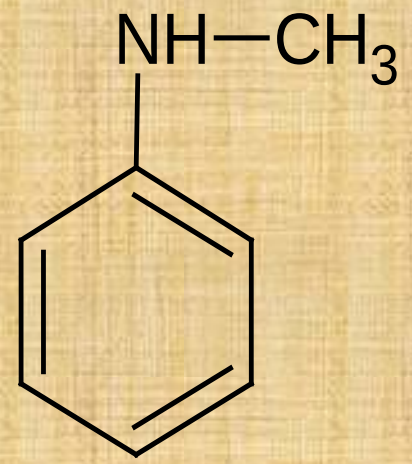
2-Methylaniline



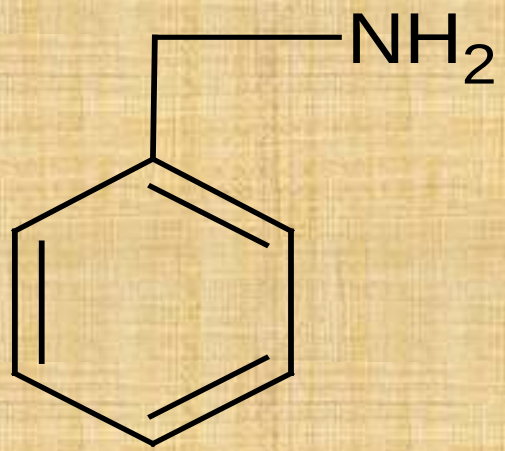
3-Methylaniline



4-Methylaniline



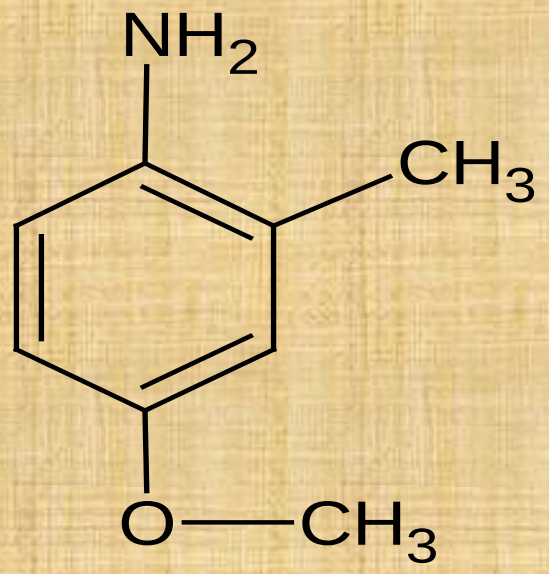
N-Methylaniline



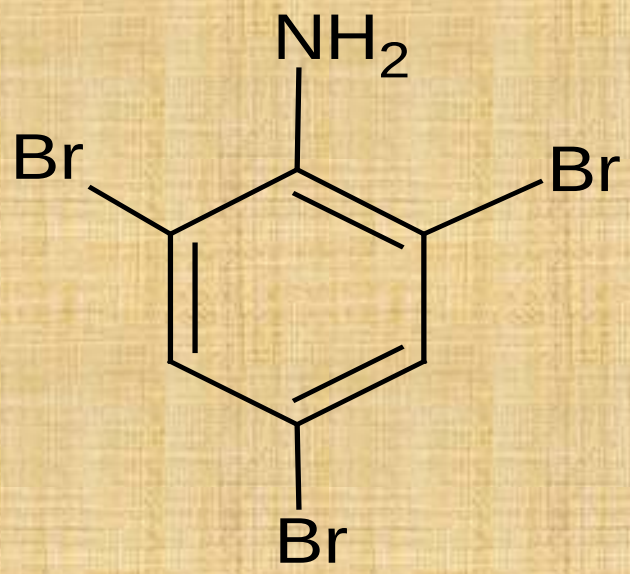
1-Phenylmethanamine

5

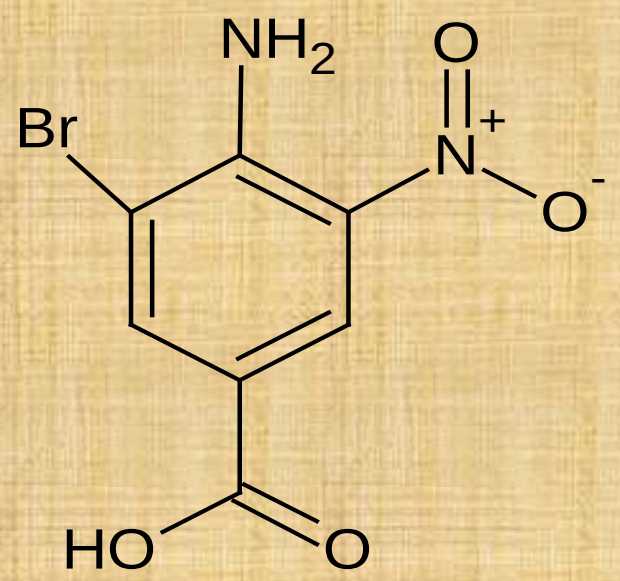
IUPAC NAME OF COMPLICATED AMINES



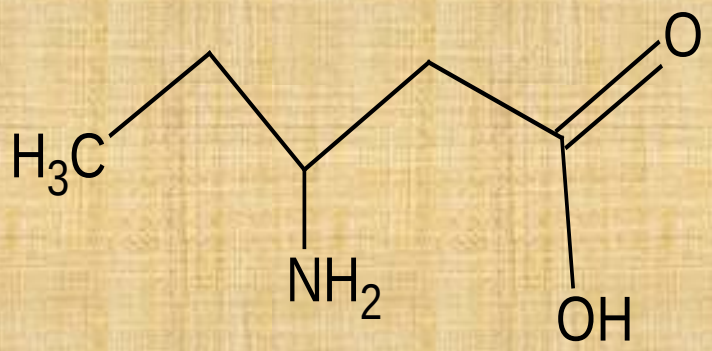
4-Methoxy-2-methylaniline



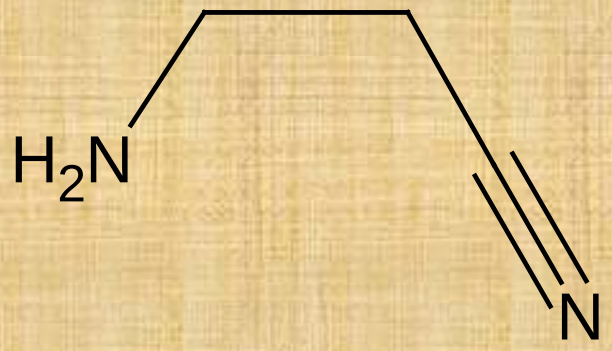
2,4,6-Tribromoaniline



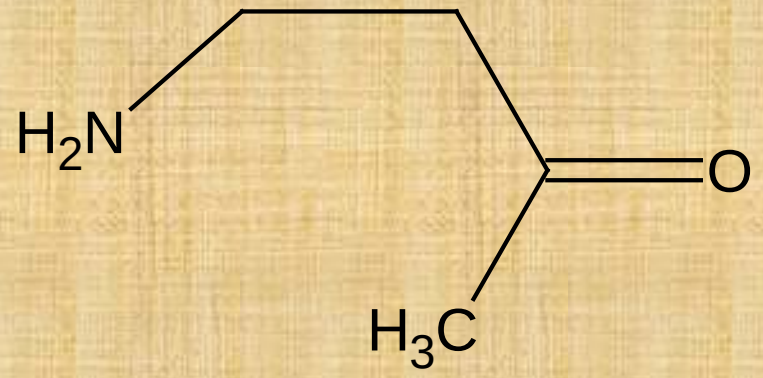
4-Amino-3-bromo-5-nitrobenzoic acid



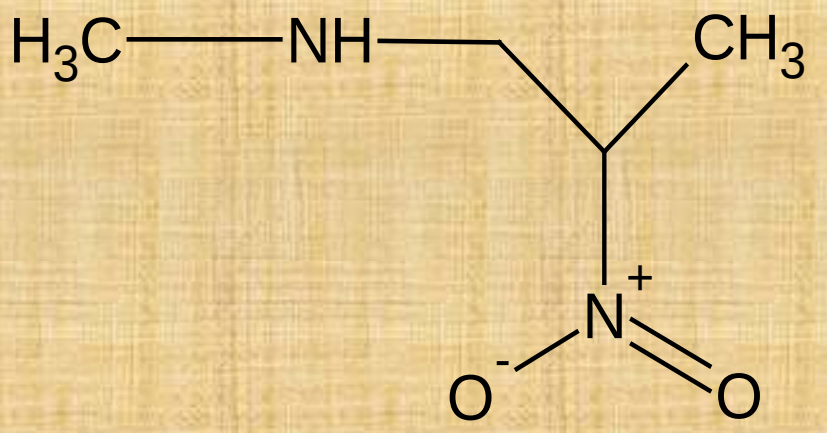
3-aminopentanoic acid



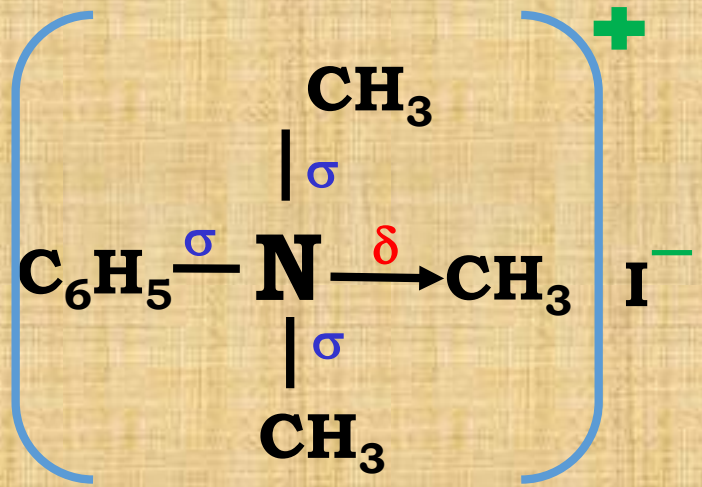
3-Aminopropanenitrile



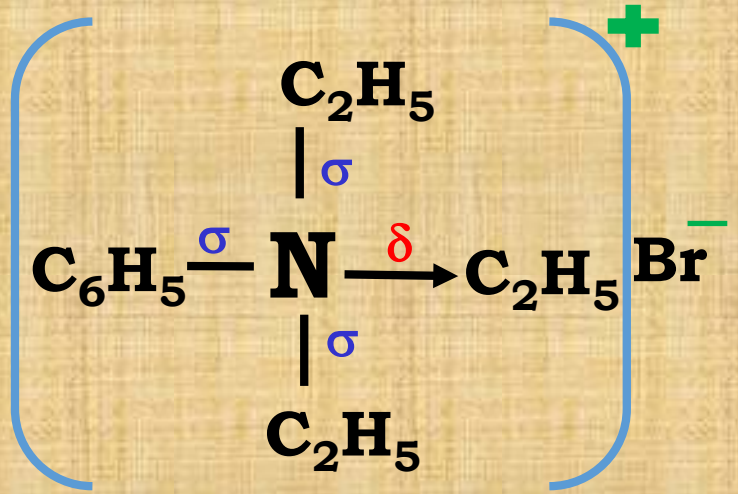
4-Aminobutan-2-one



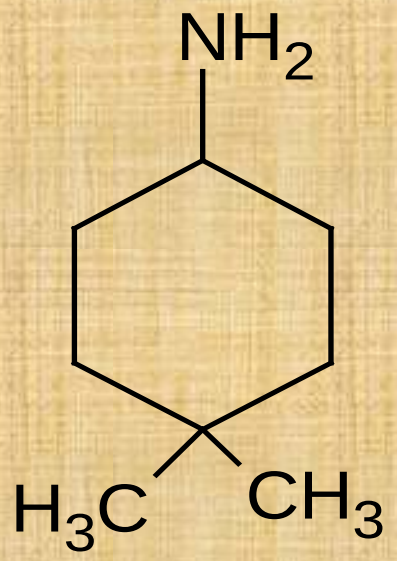
***N*-methyl-2-nitropropan-1-amine**



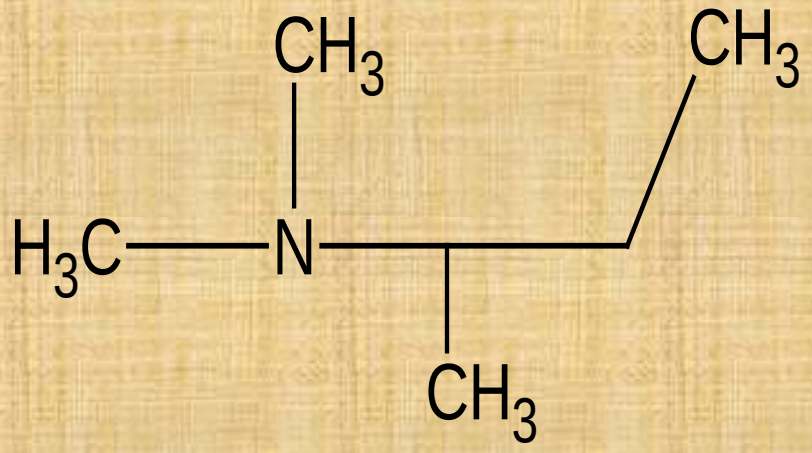
Trimethyl phenyl ammonium bromide



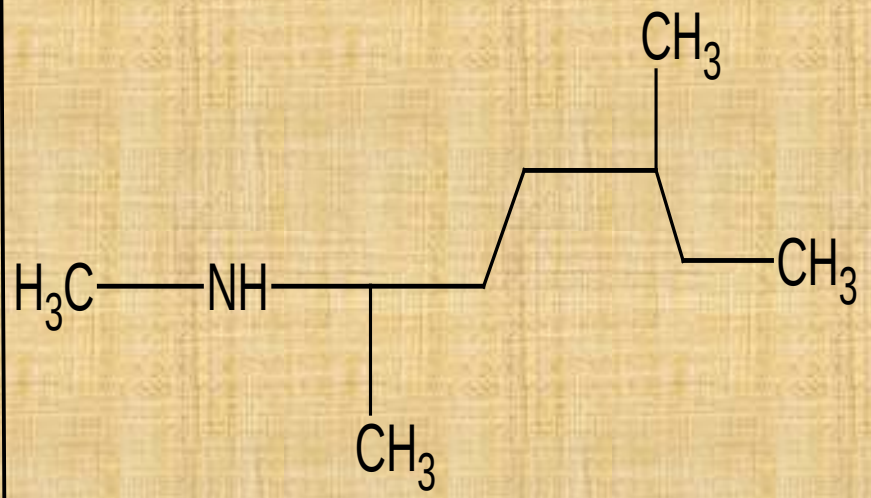
Triethyl phenyl ammonium bromide



4,4-Dimethylcyclohexanamine



N,N-dimethylbutan-2-amine



N,5-dimethylheptan-2-amine

The number of electrons in the valence shell of nitrogen in an amine is

(a) 5 **(b)** 6

(c) 7 **(d)** 8

D

Tertiary amine contains

(a) $-NH_2$ group **(b)** $>NH$ group

(c) $\equiv N$ group **(d)** $-NO_2$ group

C

Amines with respect to Ammonia are

(a) Dialkyl derivatives **(b)** Monoalkyl derivat

(c) Trialkyl derivatives **(d)** All of these

D

The bond(s) present in quaternary ammonium salt is

(a) covalent

(b) ionic

(c) covalent, ionic and co-ordinate

(d) covalent and co-ordinate

C

No. of σ and π bonds contains Allyl isocyanide are _____ and _____.

(a) 9σ and 3π

(b) 9σ and 9π

(c) 3σ and 4π

(d) 5σ and 7π

A

Quaternaryammonium salts are

(a) Tetra alkyl ammonium halide

(b) Trialkyl ammonium halide

(c) Dialkyl ammonium halide

(d) Alkyl ammonium halide

A

Quaternary ammonium salt contains how many co-ordinate bonds?

(a) One

(b) Two

(c) Three

(d) Zero

A

Isomerism shown by amines is / are

A

(a) chain

(b) position

(c) Functional

(d) all of these

The number of possible structures of amines (C_7H_9N) having one benzene ring is

C

(a) 3

(b) 4

(c) 5

(d) 6

Q. Among the following which is secondary amine?

a) $CH_3CH(NH_2)\,CH_3$

b) $(CH_3)_2\,CH\,CH_2\,NH$

C

c) $CH_3\,NH\,C_2H_5$

d) $(CH_3)_2\,N\,C_2H_5$

A secondary amine is

(a) an organic compound with two $-NH_2$ groups

(b) a compound with two carbon atoms and an $-NH_2$ group

(c) a compound with an $-NH_2$ group on the carbon in number 2 position

D

(d) a compound in which two of the hydrogen of NH_3 have been replaced by organic groups

Dimethyl amine is a functional isomers of

(a) $CH_3CH_2NH_2$ **(b)** $(CH_3)_2NH$

(c) CH_3NH_2 **(d)** $(CH_3)_3N$

A

n-butyl amine and isobutyl amine are

(a) Stereo isomers **(b)** Chain isomers

(c) Position isomers **(d)** Functional isomers

B

C_3H_9N represents

(a) primary amine **(b)** Secondary am

(c) Tertiary amine **(d)** All the above

D

C_3H_9N cannot represent

(a) 1^0 amine **(b)** 2^0 amine

(c) 3^0 amine **(d)** quarternary salt

D

Lower amines are soluble in water. This statement is

(a) False **(b)** True

(c) Either (a) or (b) **(d)** Cannot say

B

Molecular formula C_2H_7N represents

(a) 2^0 and 3^0 amines **(b)** 1^0 and 2^0 amine

(c) Only 1^0 amines **(d)** only 2^0 amines

B

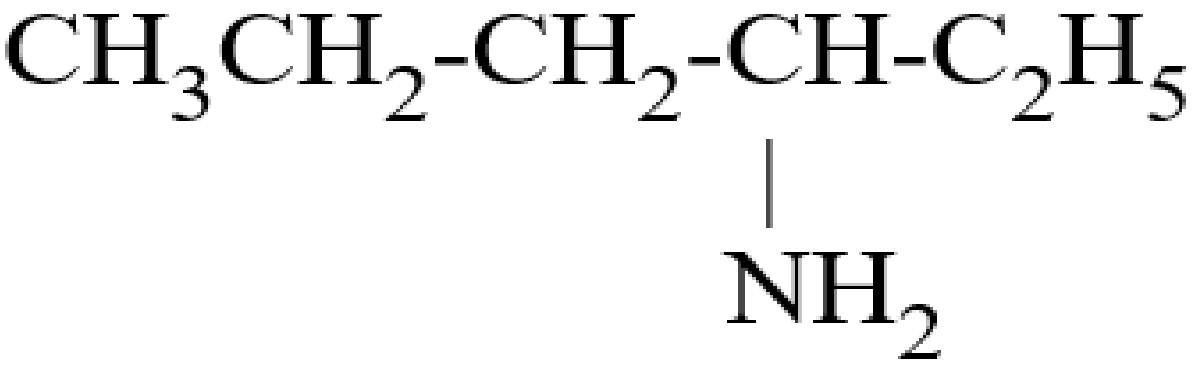
Possible isomers of C_3H_9N are

(a) Three **(b)** Four

(c) Five **(d)** Six

B

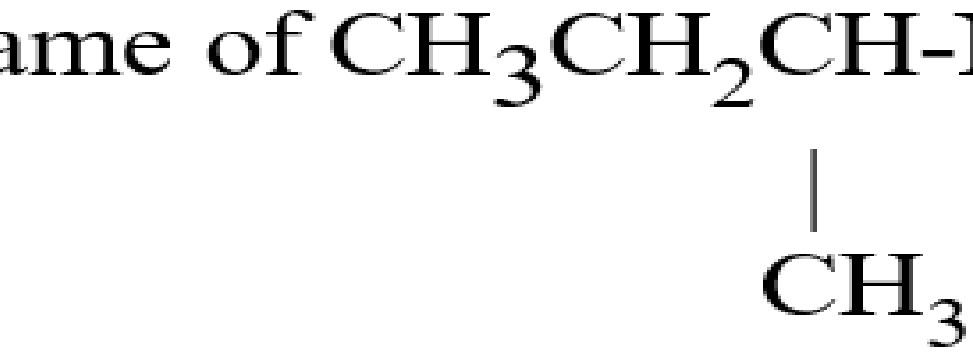
The IUPAC name of the compound



C

(a) Ethyl propanamine **(b)** Ethyl propylamine

(c) Hexan-3-amine **(d)** Pentan-2-amine

The IUPAC name of  is:

(a) 2-aminobutane

(b) 1-methyl-1-aminopropane

(c) 3-methyl-3-aminopropane

(d) 1-aminobutane

A

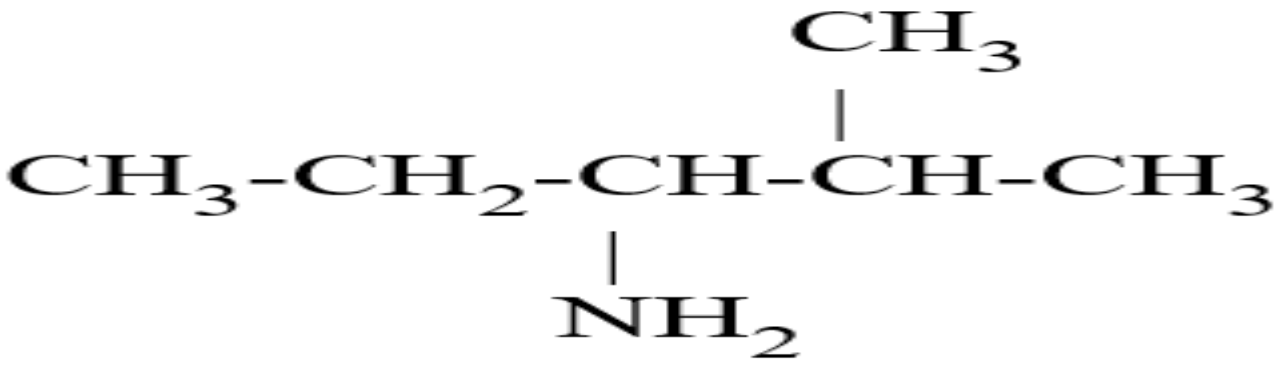
The IUPAC name for, $CH_3N(C_2H_5)_2$

(a) diethyl methyl amine **(b)** diethyl methan e

(c) Methyl diethanamine **(d)** ethyl methyl amine

C

The IUPAC name of the given compound is



A/B

(a) **3 – Amino-2-methylbutan-2-amine**

(b) 2-methyl-pentan-3-amine

(c) 2 (N, N-dimethylamino) butane

(d) 2, 4-dimethylbenzenamine

The IUPAC name for, $CH_3N(C_2H_5)_2$

C

(a) diethyl methyl amine **(b)** diethyl methan e

(c) Methyl diethanamine **(d)** ethyl methyl amine

The IUPAC name of CH_3-NH-C_2H_5 is

C

(a) N-Methyl ethyl amine **(b)** N-Ethylmethanamine

(c) N-Methyl ethanamine **(d)** N-Ethyl methyl amine

The IUPAC name of the compound $(CH_3)_3$ N is

(a) N, N-Dimethyl methanamine

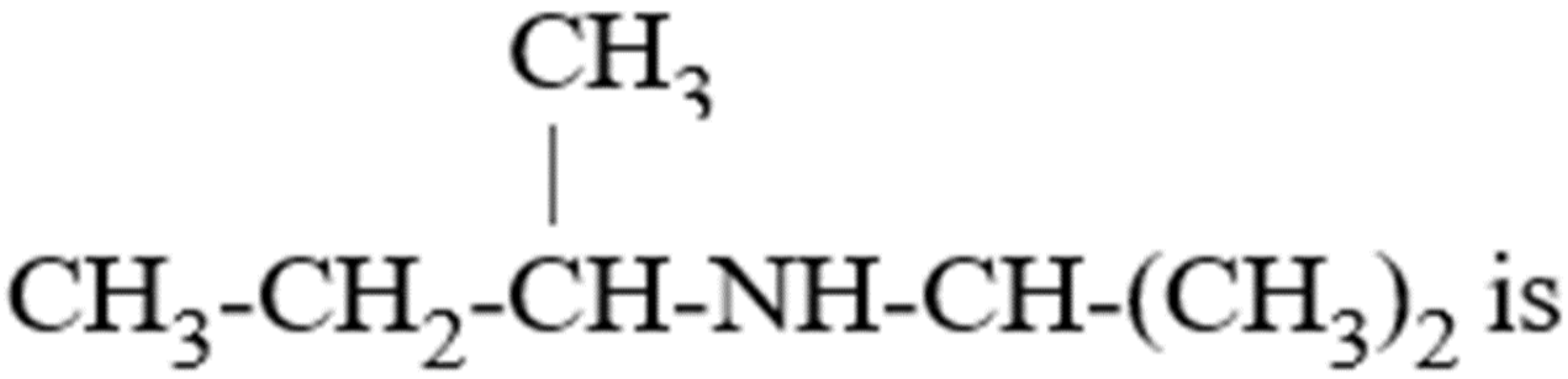
(b) Trimethyl amine

(c) Dimethyl methanamine

(d) Trimethyl methanamine

A

The IUPAC name of



CH_3-CH_2-CH(-CH_3)-NH-CH(-CH_3)$_2$ is

B

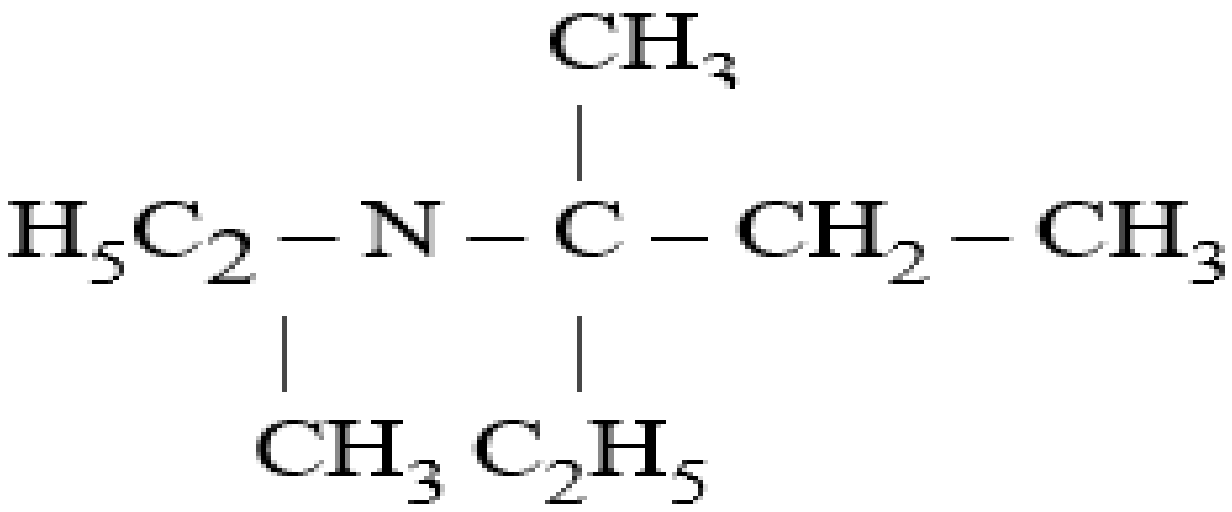
(a) N-isobutyl dimethanamine

(b) N-iso-propyl-butan-2-amine

(c) N-dimethyl butanamine

(d) N-n-propyl-butan-2-amine

Select the IUPAC name of the following :



C

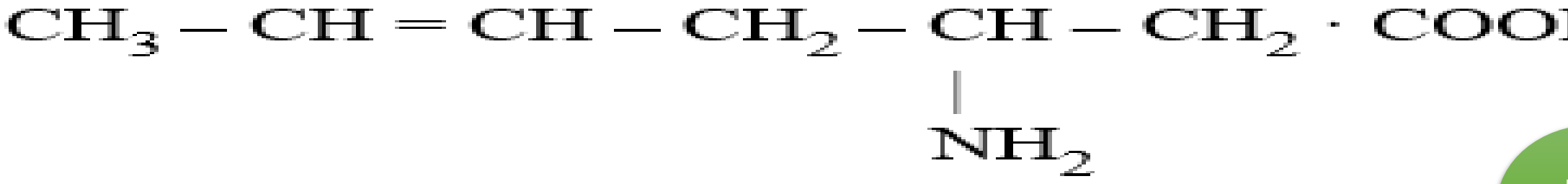
(a) N-methyl, N-ethyl-3-methyl-pentane-3-amine

(b) N-methyl, N-methyl-3-ethyl-3-methyl-propane-1-amine

(c) N-ethyl, N-methyl-3-methyl-pentane-3-amine

(d) N-methyl, N-ethyl-3-methyl-3-ethyl-propane-1-amine

The IUPAC name for



(a) 5-amino-2- heptenoic acid

(b) 3-amino-hept-5-enoic acid

(c) 5-amino-hex-2-ene-carboxylic acid

(d) β-amino-8-heptenoic acid

B

The IUPAC name of CH_3-CH(NH_2)-CH_3 is

(a) 2-amino propane

(b) propan-2-amine

(c) Secondary propyl amine

(d) both (a) and (b)

D

Boiling points of the following compounds follow the order

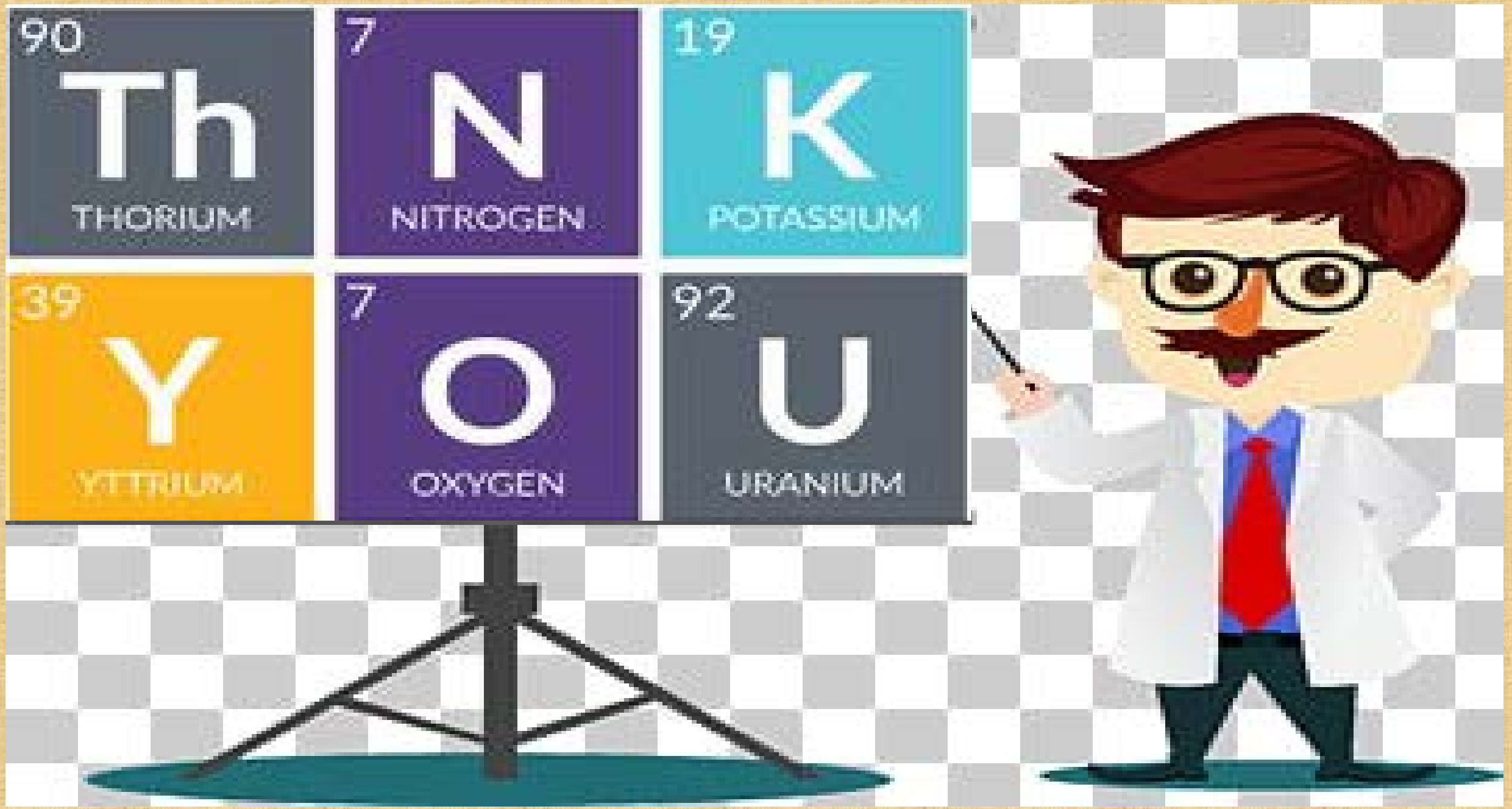
(a) $CH_3CH_3 < CH_3NH_2 < CH_3OH < HCOOH$

(b) $CH3NH_2 < CH_3OH < CH_3CH_3 < HCOOH$

(c) $CH_3OH < CH_3CH_3 < CH_3NH_2 < HCOOH$

(d) $HCOOH < CH_3NH_2 < CH_3OH < CH_3CH_2CH_3$

A


90
Th
THORIUM
7
N
NITROGEN
19
K
POTASSIUM
39
Y
YTTRIUM
7
O
OXYGEN
92
U
URANIUM