

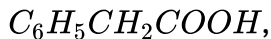
CHEMISTRY

BOOKS - G.R. BATHLA & SONS CHEMISTRY (HINGLISH)

CLASSIFICATION AND NOMENCLATURE OF ORGANIC COMPOUNDS

Solved Ex

1. Write the IUPAC names of the following (i) Orthobromotoluene: (ii)



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2. Write the structural formulae for:

(a) Benzotrifluoride,

(b) 3,5-Dinitrobenzyl chloride

(c) Trityl bromide (Triphenylmethyl bromide).

(d) Biphenyl,

(e) 2,4-Dimethyl diphenylmethane,

(f) 1,3-Diphenylbutane,

(g) Tosyl chloride (p-toluene sulphonyl chloride),

(h) Phenylnitromethane.



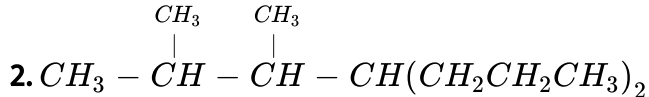
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Brain Storming

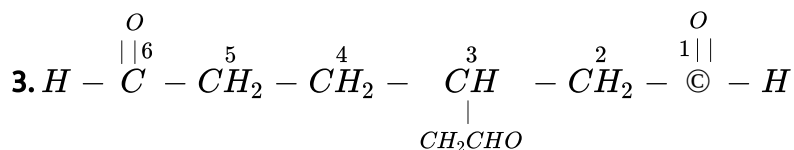
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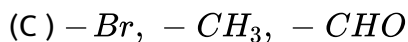
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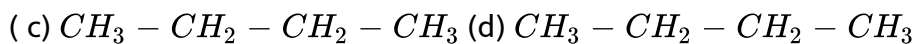
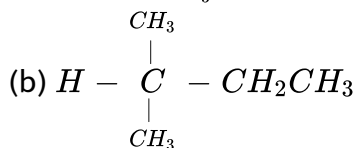
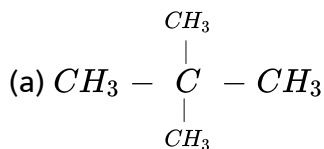
Problems

1. Select the principal functional group when the following groups are present in the molecule:



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2. What is the nature of carbon atom marked with asterisk (*) sign in the following compounds?



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3. Answer the following:

(i) What would be the molecular formula for a straight chain hydrocarbon having 8 carbon atoms with (a) all C-C single bonds. (b) One C-C double bond. © One C-C triple bond?

(ii) What is the structural unit that is added to one normal alkane in order to form the next member in the homologous series?

(iii) What is the minimum number of carbon atoms in, (a) a branched

alkane. (b) cycle-alkane?

(iv) Name the isoradical that does not have a corresponding isolkane

(v) What system of nomenclature of organic compounds are universally accepted?



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4. Write the structures of the following compounds whose IUPAC names are given as under:

(a) But-2-ene (b) 1,2,3-propantriol

(c) Ethanoyl chloride (d) 2,3-pentadione

(e) Octa-3,5-diene

(f) 4-hydroxy-3-pentenoic acid

(G) 2,3-dimethylbutan-2-ol (h) 2,2-dimethylpentanal

(i) 2,7-dimethylcata-2,4,6-triene.



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5. Give the IUPAC names of the following compounds:

- (a) Glycerol (b) Acetone
- (c) Formic acid (d) Oxalic acid
- (e) Isopropyl alcohol (f) Acetaldehyde
- (g) Acetylene (h) Ethyl alcohol
- (i) Acetic acid (j) Ethylene
- (k) Vinyl cyanide

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6. Give the common names of the following compounds which have been named according to the IUPAC system of nomenclature.

- (a) Ethanolchloride (b) Methanol
- (c) Ethanol (d) Ethanoic acid
- (e) Propane -1,2,3,tri-carboxylic acid
- (f) 1,2,3,-Propanetriol (g) Butanal
- (h)Methylethanoate (i) Ethylcarbylamine

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7. Explain why the given names in the following are wrong Give a correct name in each case:

(a) 1-methylpentane

(b) 2-ethylbutane

(c) 2,3-dichloropropane

(d) 1,1,3-trimethylpropane

(e) 3-bromo-2-methylpropane

(f) i-chloro-1-methylpropan-2-ol

(g) 3-propyl-4-methylbutan-1-oic acid

(h) 4,4-dimethylbut-2-en-1ol

(i) 1,1,2,2-tetramethylethane

(j) 1,4-dihydroxybut -2-yne

(k) 2-keto-pentan-5-oic acid

(l) 1-aminobutan-3-one.



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8. Are the following names correct according to IUPAC system of nomenclature? If not, the correct names:

(a) Pent-3-yne (b) tert-Butanol

(c) Hexa-1,6-diene (d) 4,4,3-Trimethylhex-1-yne

(e) 2-Keto-n-propanol (f) 1-Methoxyethan-2-ol

(g) 3-Methylhexa-1,5-diyne (h) 4,4,5-Trimethylhex-1-yne

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9. Give the correct IUPAC names of the following:

(a) 2-Vinylpropae (b) Isoprene

(c) Succinic acid (d) Tataric acid

(e) Chloropicerin (f) Neopentane

(g) Methyl cyanide (h) Dimethyl ether

(i) Acetamide (j) Ethyl chloride

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10. Draw the bond line structures of the following compounds whose IUPAC names are given as under:

(a) 4-Methylpent-1-ene

(b) Hex-1-yne

(c) 2,3-Dimethylbut-2-ene

(d) 3-Isbutylhept-1-ene

(e) 3-Ethyl-5-Methylhex-1-ene

(f) Penta-1,4-diyne

(g) Pent-1-en-4-yne

(h) trans-1,3-Dichlorocyclopentane

(i) 3,4-Dipropylhepta-1,3,5-triene

(j) 4,4-Dimethylpentanal

(k) Ethyl-2-cyanopropanoate

(l) N-Methylpropan-1-amine.

(m) N-Ethyl-N-methyl-2-aminopropane

(n) Pentanalimine

(o) N-N-Dimethylbutanamide

(p) 4-Phenylbutanal

- (q) 3-Ethenylpenta-1,3-diene
- (r) 4-Hydroxy-4-methyl-2-pentanone
- (s) 2,6 -Dimethylhepta-2,5-dienoic acid
- (t) 1-Cyclopropyl-3-methylpent-1-ene
- (u) 2,2,6,6-Tetramethyloctane
- (v) 3-Cyclobutylbut-1-ene
- (w) 5,6-Dimethylcyclohex-2-en-1-one
- (x) 3-Ethyl-4-methylhex-4-en-2-one
- (y) 3- phenylprop-2-en-1-oic-acid
- (z) 1,1,1,-Trichloro-2,2-diphenylethane.

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11. Draw polygon formulae for $C_5H_{10}O$.

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12. Define the following terms

(a) Paraffins

- (b) Alkyl group
- (c) Carbocyclic compounds
- (d) Heterocyclic compounds
- (e) Unsaturated compounds
- (f) Saturated compounds.

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13. Write the structural formulae of (a) a dibasic acid, (b) a polyhydric alcohol and (c) acid chloride. Name them according to IUPAC system.

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Level A

1. Alicyclic compounds are:

A. aromatic compounds

B. aliphatic cyclic compounds

C. heterocyclic compounds

D. none of the above.

Answer: B

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2. Which one of the following is the heterocyclic compound?

A. Pyrene

B. Thiophene

C. Phenol

D. Aniline

Answer: B

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3. A group closely related compounds which can be expressed by a general formula and in which two consecutive members differ by 14 in their molecular masses is called:

- A. a homologous series
- B. a homogeneous series
- C. a heterogenous series
- D. an electrochemical series.

Answer: A



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4. Which one is not correct for a homologous series?

- A. All members have a general formula
- B. all members have same chemical properties
- C. All members have same physical properties

D. All members have same functional group.

Answer: C

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5. The correct decreasing order of preference of functional groups during the IUPAC nomenclature of polyfunctional compounds is:

A. $-COOH$, $-SO_3H$, $-CONH_2$, $-CHO$

B. $-SO_3H$, $-COOH$, $-CONH_2$, $-CHO$

C. $-CHO$, $-COOH$, $-SO_3H$, $-CONH_2$.

D. $-CONH_2$, $-CHO$, $-SO_3H$, $-COOH$

Answer: A

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6. Tropolone is an example of :

- A. benzenoid aromatic compound
- B. alicyclic compound
- C. non-benzenoid aromatic compound
- D. acyclic compound

Answer: C



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7. The IUPAC name of $CH_3OC_2H_5$ is:

- A. ethoxymethane
- B. methoxyethane
- C. ethyl methyl ether
- D. methyl ethyl ether

Answer: B

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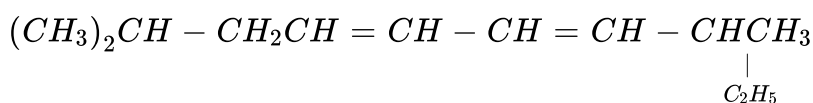
8. The IUPAC name of $CH_3 - \underset{\substack{| \\ OH}}{CH} - CH_2 - \underset{\substack{| \\ COOH}}{CH} - CH_3$ is:

- A. 4-hydroxy-2-methylpentanoic acid
- B. 4-hydroxy-1-methylpentanoic acid
- C. 2-hydroxy-2-methylpentanoic acid
- D. 2-hydroxy-4-methylpentanoic acid

Answer: A

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9. The IUPAC name of the following compound is:



A. 1,1,7,7-tetramethyl-2,5-octadiene

B. 2,8-dimethyl-3,6-decadiene

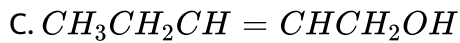
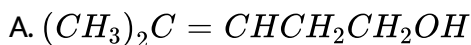
C. 1,5-di-isopropyl-1,4-hexadiene

D. 3,9-dimethyl-4,6-decadiene

Answer: C

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10. The structure of 4-methylpent-2-en-1-ol is:



Answer: B

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11. Which of the following is a correct name according to IUPAC rules?

- A. 2,3-Diethylhexane
- B. 3-Ethyl-2-methylpentane
- C. 3,4-Dimethylpentane
- D. 2-Ethyl-2-methylpentane

Answer: B



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12. Systematic name of $Pb - CH_2 - COOH$ is:

- A. benzeneceticacid
- B. phenylmethylcarboxylicacid
- C. 2-phenylethanoicacid

D. 2-phenylmethanoicacid

Answer: C

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13. Which one of the following is s-butyl phenyl vinyl methane?

A. 

B. 

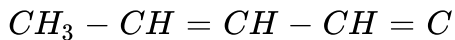
C. 

D. 

Answer: B

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14. The IUPAC name of the following compound is:



- A. Pent-4-yn -2-en
- B. Pent-2-en-4-yne
- C. Pent-3-en-1-yne
- D. Pent-1-yn-3-ene

Answer: C



[View Text Solution](#)

15. The IUPAC name of $CH_3CH_2OCH(CH_3)_2$ is:

- A. isopropoxyethane
- B. 2-methoxybutane
- C. 1-methyl-1-methoxyethane
- D. 2-ethoxypropane

Answer: D



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16. The IUPAC name of neopentane is:

A. 2,2-dimethylpropane

B. 2-methylpropane

C. 2,2-dimethylbutane

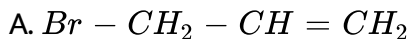
D. 2-methylbutane

Answer: A

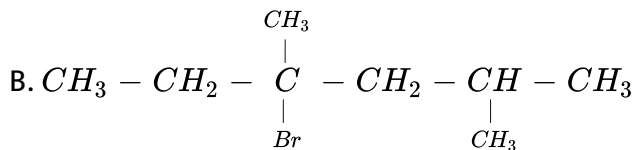


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17. Which nomenclature is not according to IUPAC system?

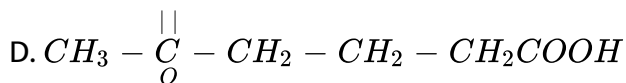


1-Bromoprop-2-ene



4-Bromo-2,4-dimethylhexane

C. 



5-oxohexanoic acid.

Answer: A

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18. The IUPAC name of $H_3C - \underset{\underset{C_2H_5}{|}}{CH} - CH_2 - \underset{\underset{OH}{|}}{CH} - CH_2Cl$ is :

A. 1-chloro-4-methylhexan-2-ol

B. 1-chloro-4-methylhexan-2-al

C. 1-chloro-4-thylpentan-2-ol

D. 1-chlon-2-hydroxy-4-methylhexane

Answer: A

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19. The IUPAC name of $CH_3 - CH = \underset{\substack{| \\ CH_2CH_2CH_3}}{C} - CH_2CH_3$ is:

A. 3-propylhex-2-ene

B. 3-propylhex-3-ene

C. 4-ethylhex-4-ene

D. 3-ethylhex-2-ene

Answer: D

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20. The IUPAC name of $CH_3CH(OH)CH_2CH(CH_3)CHO$ is :-

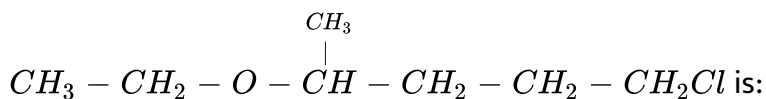
- A. 2-hydroxy-4-methylpentanal
- B. 5-hydroxyhexanal
- C. 4-hydroxy-2-methylpentanal
- D. 2-methylpent-4-ol-1-al

Answer: B



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21. The correct IUPAC name for



- A. 2-ethoxy-5-chloropentane
- B. 1-chloro-4-ethoxy-4-methylbutane
- C. 1-chloro-4-ethoxypentane

D. ethyl-1-chloropenytlether

Answer: C

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22. The IUPAC name of $H_3C - \underset{\substack{| \\ C_2H_5}}{CH} - CH_2 - \underset{\substack{| \\ OH}}{CH} - CH_2Cl$ is :

- A. 1-chloro-4-methylhexan-2-ol
- B. 1-chloro-4-methylhexan-2-al
- C. 1-chloro-4-thylpentan-2-ol
- D. 1-chlon-2-hydroxy-4-methylhexane

Answer: C

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23. The IUPAC name of the compound $CH_3CONHBr$ is:

A. 1-bromoacetamide

B. ethanoyl bromide

C. N-bromoethanamide

D. none of these

Answer: C

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24. The IUPAC name of $C_2H_5 - \overset{\overset{CH_2}{||}}{C} - CH_2 - \overset{\overset{CH_3}{|}}{CH}NH_2$ is:

A. 4-amino-2-ethylpent-1-ene

B. 2-ethylpentan-4-amine

C. aminopent-4-ene

D. 4-ethylpent-4-en-2-amine

Answer: D

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25. The IUPAC name of iso-octane is:

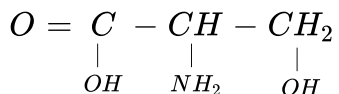
- A. 2,2-dimethylpentane
- B. 2,3-dimethylpentane
- C. 2,3,3-trimethylpentane
- D. 2,2,4-trimethylpentane

Answer: D



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26. The IUPAC name of the following compound is :



- A. 3-amino-2-hydroxypropanoic acid
- B. 2-amino-propan-3-ol-1-oic acid

C. 2-amino-3-hydroxypropanoic acid

D. amino-hydroxypropanoic acid.

Answer: C

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27. The number of primary secondary, tertiary and quaternary carbons in neopentane are respectively.

A. 4,3,2 and 1

B. 5,0,0 and 1

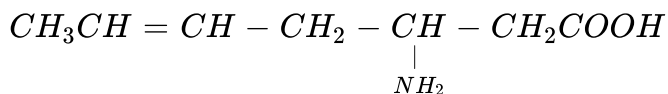
C. 4,0,0 and 1

D. 4,0,1 and 1

Answer: C

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28. The IUPAC name of the following is:



- A. 3-aminohept-5-enoic acid
- B. 5-aminohex-2-ene-carboxylic acid
- C. 3-amino- δ -heptenoic acid
- D. 5-aminohept-2-enoic acid

Answer: A

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29. The IUPAC name of $CH_3 - C \equiv CCH(CH_3)_2$ is:

- A. 4-methylpent-2-yne
- B. 4,4-dimethylpent-2-yne.
- C. methyl isopropylacetylene
- D. 2-methylpent-4-yne

Answer: A

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30. The IUPAC name of $CH_2 = CH - CN$ is

- A. ethenenitrile
- B. vinyl cyanide
- C. cyano ethene
- D. prop-2-eneitrile

Answer: D

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31. The IUPAC name of the compound

$BrCH_2 - (COONH_2)CH - CO - CH_2 - CH_3$ is:

- A. 2-(bromoethyl)-3-oxopentanamide
- B. 2-(bromoethyl)-3-ketopentanamide
- C. 2-(bromomethyl)-3-oxopentanamide
- D. 3-(bromoethyl)-3-oxopentanamide

Answer: C

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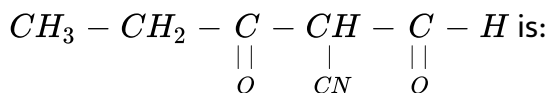
32. The IUPAC name of  (##GRB_ORG_CHM_P1_C03_E03_046_Q01.png" width="80%")>

- A. 4-ethyl cyclobut-2-en-1-ol
- B. 4-ethyl cyclobut-1-en-3-ol
- C. 3-ethyl cyclobut-1-en-2-ol
- D. 2-ethyl cyclobut-3-en-1-ol

Answer: A

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33. The IUPAC name of the given compound



- A. 2-cyano-3-oxopentanal
- B. 2-formyl-3-oxopentanenitrile
- C. 1,3-dioxo-2-cyanopentane
- D. 2-ethyl cyclobut-3-en-1-ol

Answer: B

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34. The IUPAC name of the given structure H is:

- A. 2,2-dimethyl butane
- B. isohexane

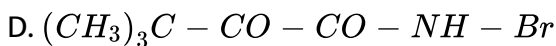
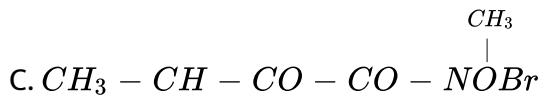
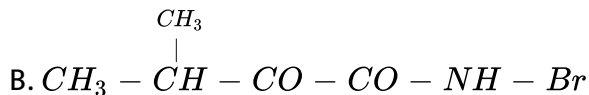
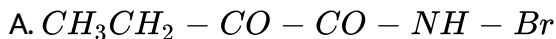
C. 2,3-dimethyl butane

D. disohexane

Answer: C

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35. The structural formula of 2-oxo-3-methyl-(N-bromo) butanamide is:



Answer: B

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36. The IUPAC name of the given structure A is:-

- A. 1,2-dimethylcyclopropane
- B. cyclopropane-1,2-dimethyl
- C. 1-methyl-1-methylcyclopropane
- D. cyclopentane

Answer: A



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37. The correct IUPAC name for $H_2C = CH - C \equiv CH$ is:

- A. but-3-en-1-yne
- B. but-1-en-3-yne
- C. but-1-yn-3-ene
- D. but-3-yn-1-ene

Answer: B

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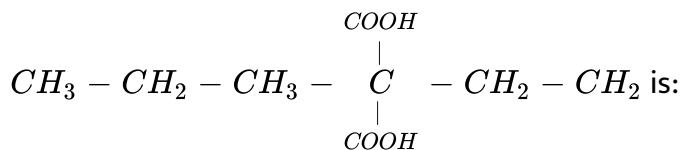
38. The IUPAC name of $Cl\overset{\overset{O}{||}}{C} - CH_2 - \underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}} - CH_2 - COOH$ is:

- A. 3,3-dimethyl-5-carboxypentanoyl chloride
- B. 4-chloroformyl-1,3,3-dimethylpentanoic acid
- C. 5-carboxy-3,3-dimethylpentanoyl chloride
- D. 5-chloroformyl-1,3,3-dimethylpentanoic acid

Answer: D

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39. The IUPAC name of the compound



- A. 2-propyl-2-ethylpropane-1,3-dioic acid
- B. 2-ethyl-2-propylpropane-1,3-dioic acid
- C. 2-ethyl-2-carboxypentanoic acid
- D. 2-carboxy-2-ethylpentanoic acid

Answer: B



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40. The compound which contains all the four 1° , 2° , 3° and 4° carbon atom is:

- A. 2,3-dimethylpentane
- B. 3-chloro-2,3-dimethylpentane

C. 2,3,4-trimethylpentane

D. 3,3-dimethylpentane

Answer: B

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41. The IUPAC name of C_6H_5COCl is:

A. benzoyl chloro ride

B. benzene chloroketone

C. benzene carbonylchlor ide

D. chlorophenyl ketone

Answer: C

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42. The IUPAC name of $Cl - CH_2 - CH = \underset{\substack{| \\ CH_2CH_3}}{C} - CH_2OH$ is:

- A. 1-chloro-2-ethyl-4-hydroxybut-2-ene
- B. 4-hydroxy-1-chloro-2-ethylbut-2-ene
- C. 4-chloro-2-ethylbut-2-en-1-ol
- D. 2-ethyl-2-chlorobut-2-en-1-ol

Answer: C



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43. In the IUPAC system.

$PhCH_2CH_2CO_2H$ is named as:

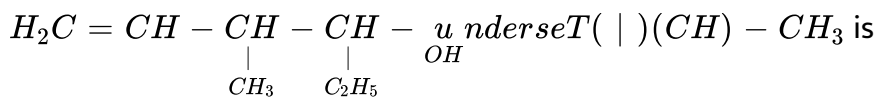
- A. benzyl acetic acid
- B. carboxy ethylbenzene
- C. 3-phenylpropanoic acid

D. 2-phenylpropanoic acid

Answer: C

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44. The IUPAC name of the compound

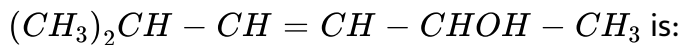


- A. 3-ethyl-4-methylhex-5-en-2-ol
- B. 3-methyl-4-ethylhex-1-en-5-ol
- C. 3-ethyl-2-hydroxy-4-methylhex-5-ene
- D. none of the above.

Answer: A

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45. The IUPAC name of the compound



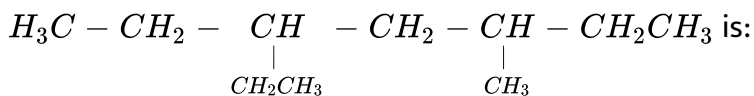
- A. 5-methylhex-3-en-2-ol
- B. 2-methylhex-3-en-5-ol
- C. 2-hydroxy-5-methyl-3-hexane
- D. 5-hydroxy-2-methyl-3-hexane

Answer: A



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46. The IUPAC name of the following compound



- A. 3-ethyl-5-methylheptane
- B. 5-ethyl-3-methylheptane

C. 3,5-diethylhexane

D. 1,1-diethyl-3-methylpentane

Answer: A

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47. The IUPAC name of tertiary butyl iodide is:

A. 1-iodo-3-methylpropane

B. 2-iodo-2-methylpropane

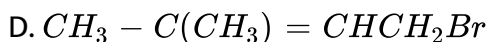
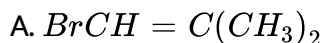
C. 4-iodobutane

D. 2-iodobutane

Answer: B

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48. The correct structure of 4-bromo-3-methyl but-1 ene is:

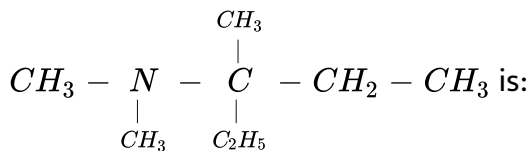


Answer: C



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49. The IUPAC name of the following compound



A. 3-dimethylamino-3-methylpentane

B. 3-(N,N-trimethyl)-3-aminopentane

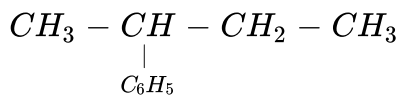
C. 3-N, N-trimethylpentanimine

D. 3-(N,Ndimethyl)amino-3-methylpentane

Answer: D

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50. The IUPAC name of the following compound is

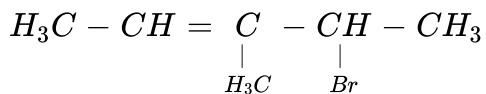


- A. 2-cyclohexylbutane
- B. sec-butylbenzene
- C. 3-cyclohexylbutane
- D. 2-phenylbutane

Answer: D

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51. the correct IUPAC name of the following compound is

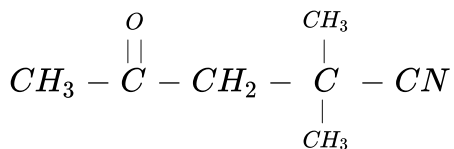


- A. 2-bromo-4-methylpent-2-ene
- B. 2-bromo-3methylpent-4-ene
- C. 3-methyl-4-bromopent-2-ene
- D. 3-methyl-2-bromopent-4-ene

Answer: C

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52. The IUPA name of the following compounds is:



- A. 4-cyano-4-methyl-2-oxopentane
- B. 2-cyano-2-methyl-4-oxopentane

C. 2,2-dimethyl-4-oxopentanenitrie

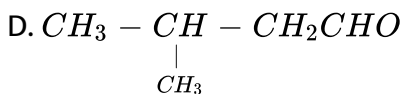
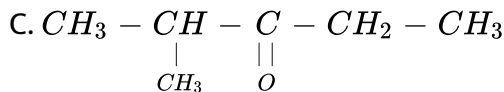
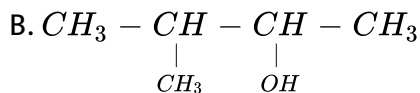
D. 4-cyano-4-methyl-2-pentanone

Answer: C

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Level B

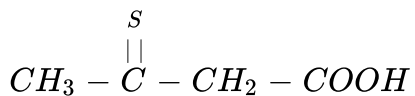
1. Which of the following compounds but incorrect IUPAC nomenclature?



Answer: bicyclo [2,2,0] hexane

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2. Give the IUPAC name of the following compounds.



- A. 3-Thiabutanoic acid
- B. 3-Sulphobutanoic acid
- C. 3-Thiobutanoic acid
- D. 3- Thioxobutanoic acid

Answer: a

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3. Select the structure with correct numbering for IUPAC name of the compound

A. 

B. 

C. 

D. 

Answer: b

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4. Which of the following is the correct IUPAC name for the compound given in above question?

A. 6-mercapt o-4-cyclohexene-1,3-diol

B. 4-mercapto-5-cyclohexene-1-3-diol

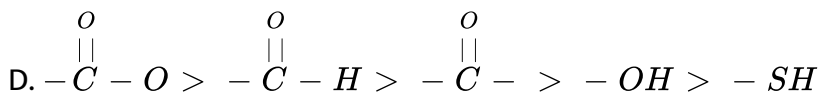
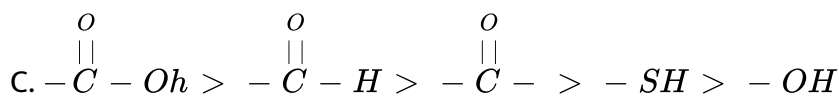
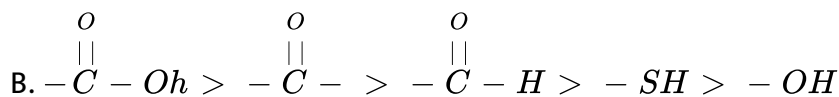
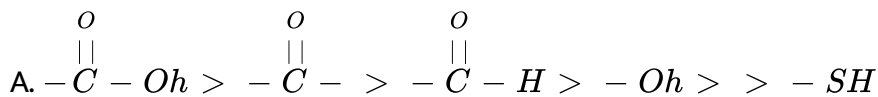
C. 2,4-dihydroxy-5-cyclohexene-1-mercaptan

D. 4,6-dihydroxy-2-cyclohexene-1-mercaptan

Answer: a

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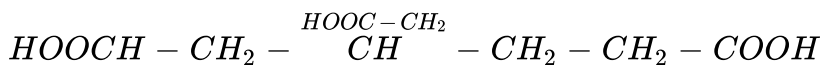
5. Select the correct priority for citation as principal group:



Answer: d

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6. What will be the prefix in the following compound?



A. methylcarboxy

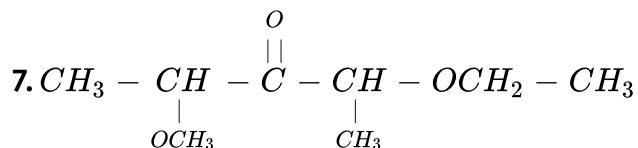
B. carboxymethyl

C. carboxyethyl

D. ethylcarboxy

Answer: b

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The IUPAC name of this compound is

A. 2-ethoxy-4-methoxy-pentan-3-one

B. 2-methoxy-4-ethoxy-pentan-3-one

C. 2-ethoxy-3-methoxy-pentan-3-one

D. none of the above.

Answer: a

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8. The IUPAC name of $BrCH_2CHCOCH_2CH_2CH_3$, is:



- A. 2-bromomethyl-3-oxohexanamide
- B. 1-bromo-2-amido-3-oxohexane
- C. 1-bromo-2-amido-n-propylketone
- D. 3-bromo-2-propyl propanamide

Answer: a



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9. Which name is incorrect?

A. 

B. 

C. 

D. 

Answer: d

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10. Structure of the compound whose IUPAC name is 3-ethyl-2-hydroxy-4-methyl hex-3-en-5-ynoic acid is:

A. 

B. 

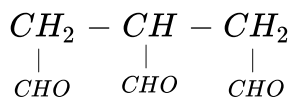
C. 

D. 

Answer: b

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11. Which of the following names are not correct for the given compound?



A. 3-Formylpentane-1,5-dial

B. 1,2,3-Triformyl-propane

C. 2-Formylbutane-1,4-dial

D. Propane-1,2,3-tircarbaldehyde

Answer: b,c

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12. The name chloromethyl acetylene implies:

A. $CH_3 - CH = CHCl$

B. $ClCH_2 - CH = CH_2$

C. $CH_3 - C \equiv C - Cl$

D. $ClCH_2 - C \equiv CH$

Answer: c,d

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13. The compound $CH_3 - C \equiv C - CH_3$ can be names as:

A. dimethylacetylene

B. crotonylene

C. but-2-yne

D. allylene

Answer: a,b,c



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14. The compound $(CH_3)_2C(OH)CH_2CH_3$ is called:

A. 2-methylbutan-2-ol

B. isoamylalcohol

C. ethyldimethylcarbinol

D. tert-pentylalcohol

Answer: a,c,d

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15. The compound $C_6H_5 - CH = CH - COOH$ may be called as:

- A. succinic acid
- B. 3-phenylprop-2-en-1-oic acid
- C. mandelic acid
- D. cinnamic acid

Answer: b,d

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16. Which of the following statements is/are correct?

- A. Spirocompounds contain fused rings at quaternary carbon.
- B. Bicyclo compounds contain two rings connected by a bridge
- C. Bicyclo compounds cannot be aromatic
- D. Cyclic alkynes are unstable

Answer: a,b,d

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17. The IUPAC name for diglyme i.e.

$CH_3OCH_2CH_2OCH_2CH_2OCH_3$ is/are:

- A. 2,5,8-trioxanonane
- B. bis (2-methoxy ethyl)ether
- C. β, β -dimethoxy-diethyl ether
- D. diethylene glycol dimethyl ether

Answer: a,b

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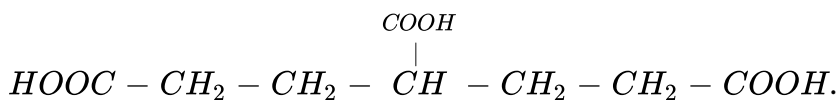
18. which of the following are the names of cyclic ether?

- A. Oxirane
- B. Epoxyalkane
- C. Alkene oxide
- D. Carbinol

Answer: a,b,c

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19. Which of the following names are correct for the compound?



- A. Pentane-1,3,5-tricarboxylic acid

B. 4-Carboxy heptane-1,7-dioic acid

C. Heptane-1,4,7-trioic acid

D. All are correct

Answer: a,b

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Assertion Reason

1. (A) The locant (2,8,7) is preferred over the locant (3,4,9)

(R) Lowest locant number at first difference is preferred.

A. If both assertion and reason are correct and reason is the correct explanation of the assertion

B. If both assertion and reason are correct but reason is not correct explanation of the assertion.

C. If assertion is correct but reason is incorrect.

D. If assertion is incorrect but reason is correct

Answer: a

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2. (A) The IUPAC name of $CH_3 - CH = CH - C \equiv C - H$ is pent-3-en-1-yne and not pent-2-en-4-yne.

(R) Lowest locant rule for multiple bond is preferred.

A. If both assertion and reason are correct and reason is the correct explanation of the assertion

B. If both assertion and reason are correct but reason is not correct explanation of the assertion.

C. If assertion is correct but reason is incorrect.

D. If assertion is incorrect but reason is correct

Answer: a



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3. (A) The IUPAC name for the compound $C_6H_5COOCH_2CH_2COOH$ is 3-benzoyloxy propanoic acid. (R) $C_6H_5CH_2O$ is called benzoyloxy group.

- A. If both assertion and reason are correct and reason is the correct explanation of the assertion
- B. If both assertion and reason are correct but reason is not correct explanation of the assertion.
- C. If assertion is correct but reason is incorrect.
- D. If assertion is incorrect but reason is correct

Answer: c



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4. (A) The IUPAC name of citric acid 2-hydroxypropane-1,2,3-tricarboxylic acid.

(R) When an unbranched carbon atom is directly linked to more than two like functional groups. Then it is named as a derivative of the parent alkane which does not include the carbon atoms of the functional groups.

- A. If both assertion and reason are correct and reason is the correct explanation of the assertion
- B. If both assertion and reason are correct but reason is not correct explanation of the assertion.
- C. If assertion is correct but reason is incorrect.
- D. If assertion is incorrect but reason is correct

Answer: a



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Comp

1. In addition to the standard ring systems (such as cyclohexane), cyclic compounds can also be bicyclic, tricyclic, etc., or they can be spirocyclic, bicyclic or bridge head carbons. The point of attachment of two rings are called bridge head carbons. The point of attachment of two rings are called bridge head atoms

Some bicyclic compounds like camphor are commonly found in plants. Others like norbornane can be synthesized in the laboratory. The formal names of of bicyclic and related ring systems are based on :

(1) Total number of atoms in the molecule.

(2) The number of atoms in each bridge connecting the bridge head atoms. These numbers are written in square bracket in decreasing order.

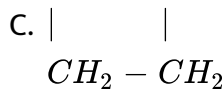
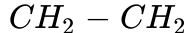
Spirocyclic compounds have two fused rings, but only one bridge head atom. Spirocyclic compounds are named like bicyclic compounds, but have the prefix spirocyclo.

Answer the following questions :

Which of the following is the correct structure of bicyclo [1.1.0] butane ?

A. 

B. 



Answer: a,b

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2. If the organic compound contains more than two similar terminal groups and all of them are directly attached to the principal chain, then none of them forms a part of the principal chain. Special suffixes are used to name these.

Functional group	Suffix
$-CONH_2$	Carboxamide
$-CN$	Carbonitrile
$-CHO$	Carbaldehyde
$-COOH$	Carboxylic acid

Carbon atoms of these terminal groups are not counted in the principal chain. If any one of these terminal groups is not directly attached to the parent chain and forms the part of side chain, then the longest chain is selected containing two such similar groups at its two ends. The groups

present in the side chain are treated as substituents and are indicated by suitable prefixes.

Indicate whether the following IUPAC name are true (a) or false (b).

Compound	IUPAC Name
$\begin{array}{c} \text{COOH} \\ \\ \text{HOOC} - \text{CH}_2 - \text{CH} - \text{CH}_2 - \text{COOH} \end{array}$	Propane - 1,2,3-tricarboxy
True (a)	False (b)

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3. If the organic compound contains more than two similar terminal groups and all of them are directly attached to the principal chain, then none of them forms a part of the principal chain. Special suffixes are used to name these.

Functional group	Suffix
$-\text{CONH}_2$	Carboxamide
$-\text{CN}$	Carbonitrile
$-\text{CHO}$	Carbaldehyde
$-\text{COOH}$	Carboxylic acid

Carbon atoms of these terminal groups are not counted in the principal chain. If any one of these terminal groups is not directly attached to the parent chain and forms the part of side chain, then the longest chain is

selected containing two such similar groups at its two ends. The groups present in the side chain are treated as substituents and are indicated by suitable prefixes.

Indicate whether the following IUPAC name are true (a) or false (b).

Compound	IUPAC Name
$\begin{array}{c} \text{CN} \\ \\ \text{NC} - \text{CH}_2 - \text{CH} - \text{CH}_2 - \text{CN} \end{array}$	3-cyanopentane-1,5-dinitrile
True (a)	False (b)

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4. If the organic compound contains more than two similar terminal groups and all of them are directly attached to the principal chain, then none of them forms a part of the principal chain. Special suffixes are used to name these.

Functional group	Suffix
$-\text{CONH}_2$	Carboxamide
$-\text{CN}$	Carbonitrile
$-\text{CHO}$	Carbaldehyde
$-\text{COOH}$	Carboxylic acid

Carbon atoms of these terminal groups are not counted in the principal chain. If any one of these terminal groups is not directly attached to the

parent chain and forms the part of side chain, then the longest chain is selected containing two such similar groups at its two ends. The groups present in the side chain are treated as substituents and are indicated by suitable prefixes.

Indicate whether the following IUPAC name are true (a) or false (b).

Compound	<i>IUPAC</i> Name
$ \begin{array}{c} \text{CH}_2 - \text{COOH} \\ \\ \text{HOOC} - \text{CH}_2 - \text{CH} - \text{CH}_2 - \text{COOH} \end{array} $	3-(carboxymethyl)pentane
True (a)	False (b)

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5. If the organic compound contains more than two similar terminal groups and all of them are directly attached to the principal chain, then none of them forms a part of the principal chain. Special suffixes are used to name these.

Functional group	Suffix
$-\text{CONH}_2$	Carboxamide
$-\text{CN}$	Carbonitrile
$-\text{CHO}$	Carbaldehyde
$-\text{COOH}$	Carboxylic acid

Carbon atoms of these terminal groups are not counted in the principal

chain. If any one of these terminal groups is not directly attached to the parent chain and forms the part of side chain, then the longest chain is selected containing two such similar groups at its two ends. The groups present in the side chain are treated as substituents and are indicated by suitable prefixes.

Indicate whether the following IUPAC name are true (a) or false (b).

Compound	<i>IUPAC</i> Name
CH_2CHO $ $ $OHC - CH_2 - CH - CH_2 - CHO$	3-(formylmethyl)pentane-1,5-
True (a)	False (b)



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6. If the organic compound contains more than two similar terminal groups and all of them are directly attached to the principal chain, then none of them forms a part of the principal chain. Special suffixes are used to name these.

Functional group	Suffix
$-CONH_2$	Carboxamide
$-CN$	Carbonitrile
$-CHO$	Carbaldehyde
$-COOH$	Carboxylic acid

Carbon atoms of these terminal groups are not counted in the principal chain. If any one of these terminal groups is not directly attached to the parent chain and forms the part of side chain, then the longest chain is selected containing two such similar groups at its two ends. The groups present in the side chain are treated as substituents and are indicated by suitable prefixes.

Indicate whether the following IUPAC name are true (a) or false (b).

Compound	<i>IUPAC</i> Name
$\begin{array}{c} \text{CONH}_2 \\ \\ \text{H}_2\text{NOC} - \text{CH}_2 - \text{CH} - \text{CH}_2 - \text{CONH}_2 \end{array}$	Propane-1,2,3-tricarboxylic acid
True (a)	False (b)

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Integer

1. The total number of alkyl groups having the molecular formula (a) C_3H_7 (b) C_4H_9 (c) C_5H_{11} are.

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2. How many of the following names are correct according to IUPAC system of nomenclature ?

Pent - 3 - yne, Hexa-1, 6-diene, 3 - Methylhexa-1, 5-diyne, 2 - Ethyl-2-pentene, 1-Methoxyethane-2-ol, 4,4,5-Trimethyl hex-1-yne, 1, 2-Dihydroxyethane, Pent-4-en-1-yne.



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