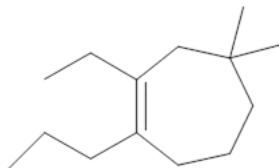


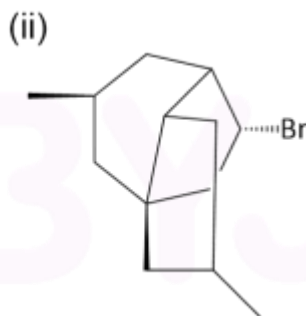
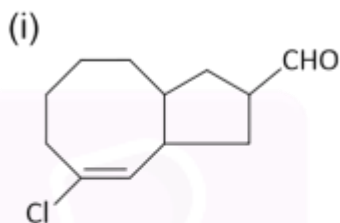
# Important Questions On IUPAC Nomenclature In Organic Compounds

## Important Questions on IUPAC Nomenclature in Organic Compounds

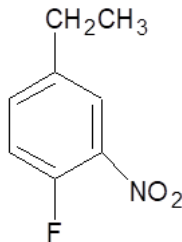
1. The correct IUPAC name for the following molecule is?



- A. 1-Propyl-2-ethyl-4,4-dimethylcyclohept-1-ene  
 B. 2-Ethyl-4,4-dimethyl-1-propylcyclohept-1-ene  
 C. 3-Ethyl-1,1-dimethyl-4-propylcyclohept-3-ene  
 D. 1-1-dimethyl-3-ethyl-4-propylcyclohept-3-ene
2. Given IUPAC name for the following:

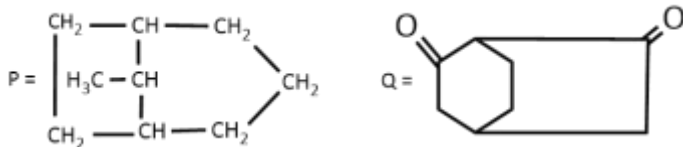


- A. (i) 3-chloro-bicyclo [6.3.0] undec-2-ene-10-carbaldehyde  
 (ii) 6-endo-bromo-8-anti-isobutyl-1,3-exo-dimethyl-bicyclo [3.2.1] octane  
 B. (i) 5-chloro-bicyclo [6.3.0] undec-6-ene-3-carbaldehyde  
 (ii) 6-exobromo-8-anti-isobutyl-1,3-exo-dimethyl-bicyclo [3.2.1] octane  
 C. (i) 7-chloro-bicyclo [0.3.6] undec-6-ene-3-carbaldehyde  
 (ii) 6-endo-bromo-8-anti-isobutyl-1,3-exo-dimethyl-bicyclo [1.2.3] octane  
 D. (i) 7-chloro-bicyclo [6.3.0] undec-6-ene-3-carbaldehyde  
 (ii) 6-endo-bromo-8-anti-isobutyl-1,4-exo-dimethyl-bicyclo [3.2.1] octane
3. The IUPAC name of the given compound below is?



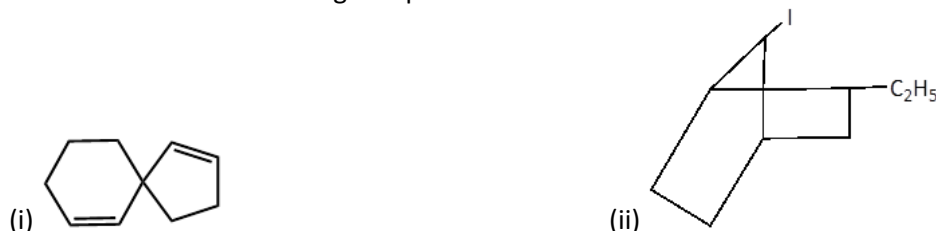
- A. 5-ethyl-2-fluoro-1-nitrobenzene  
 B. 4-ethyl-1-fluoro-2-nitrobenzene  
 C. 4-ethyl-1-fluoro-6-nitrobenzene  
 D. 1-ethyl-5-fluoro-4-nitrobenzene

4. Give IUPAC for the following:



- A. P = 8-methyl bicyclo [5. 4. 1] octane Q = bicyclo [4. 2.2] octa -1, 5-dione  
 B. P = 8-methyl bicyclo [3. 2. 1] octane Q = bicyclo [2.2.2] octa -2, 6-dione  
 C. P = 8 -methyl bicyclo [2.3.1] octane Q = bicyclo [2.2.2] octa -2, 6-dione  
 D. P = 8-methyl bicyclo [4.5.1] octane Q = bicyclo [2. 4. 2] octa-1, 5-dione

5. Give IUPAC for the following compounds:



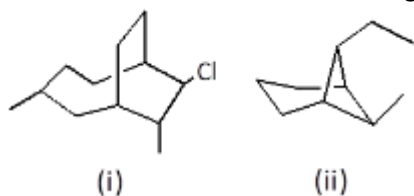
- A. (i) spiro[5, 4] deca-1, 9 dene (ii) 1-ethyl-4-iodobicyclo [2. 2. 1] heptane  
 B. (i) spiro [4, 5] deca-1, 9 diene (ii) 2-ethyl -5-iodobicyclo [1. 2. 2] heptane  
 C. (i) spiro [4, 5] deca-1, 6 diene (ii) 2-ethyl-7 iodobicyclo [2. 2. 1] heptane  
 D. (i) spiro [5, 4] deca-1, 6-diene (ii) 2-ethyl-7 iodobicyclo [1. 2. 2] heptane

6. Give IUPAC for the following compound.



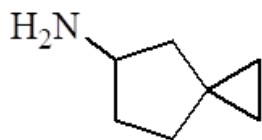
- A. 3, 6, 6-trimethyl bicyclo [3.1.1] hept-2-ene  
 B. 2, 7, 7-trimethyl bicyclo [3.1.1] hept-2-ene  
 C. 3, 6, 6-trimethyl bicyclo [1.1.3] hept-2-ene  
 D. 2, 7, 7-trimethyl bicyclo [1.1. 3] hept-2-ene

7. Give IUPAC name for the following:



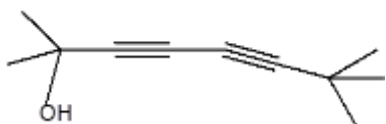
- A. (i) 3—chloro-2,7-dimethyl-bicyclo [4.2.2] decane  
 (ii) 8-ethyl-2-methyl-bicyclo [3.2.1] octane  
 B. (i) 7-chloro—3,8-dimethyl—bicyclo [2.2.4] decane  
 (ii) 8-ethyl-6-methyl-bicyclo [1.2.3] octane  
 C. (i) 7-chloro-3,8-dimethyl-bicyclo [4.2.2] decane  
 (ii) 8-ethyl-6-methyl bicyclo [3.2.1] octane  
 D. (i) 3-chloro—2, 8-dimethyl-bicyclo [2.2.4] decane  
 (ii) 8-ethyl-2-methyl-bicyclo [1.2.3] octane

8. The IUPAC name of the compound given below is?



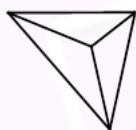
- A. 5-aminospiro [2, 4] heptane  
 B. 2-aminospiro [4, 2] heptane  
 C. 2-aminospiro [2, 4] heptane  
 D. 5-aminospiro [4, 2] heptane

9. Choose the correct IUPAC name of the given compound.



- A. 2,7,7-trimethyl-3,5-octadiyne-2-ol  
 B. 2,2,7-trimethyl-3,5-octadiyne-7-ol  
 C. 2,7,7-trimethyl-3,5-heptadiyne-2-ol  
 D. 2,2,7-trimethyl-3,5-heptadiyne-7-ol

10. Which of the following is the correct IUPAC naming of the given structure:



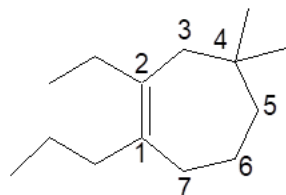
- A. Tricyclo [0.0.0] butane  
 B. Tricyclo [0.0.1<sup>2,4</sup>.0] butane  
 C. Tricyclo [1.1.0.0<sup>2,4</sup>] butane  
 D. Tricyclo [0.0<sup>1,3</sup>.1.1] butane

## ANSWERS

1. B      2. A      3. B      4. B      5. C      6. A      7. C  
 8. D      9. A      10. C

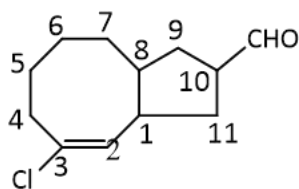
## SOLUTIONS

**Solution 1:**

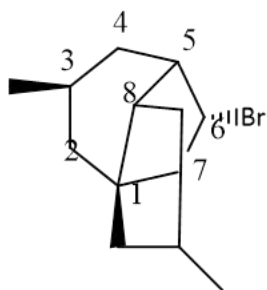


2-Ethyl-4, 4-dimethyl-1-propylcyclohept-1-ene.

**Solution 2:**



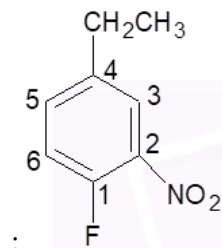
3-chloro-bicyclo [6.3.0]  
undec-2-ene-10-carbaldehyde



6-endo-bromo-8-anti-isobutyl-1,3-  
exo-dimethyl-bicyclo-[3.2.1]  
octane

**Solution 3:**

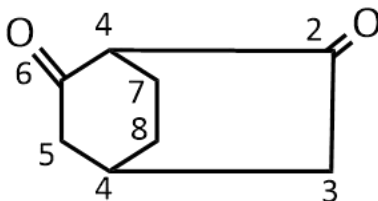
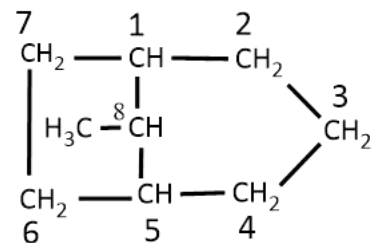
Numbering of substituents will be done based on priority order. Now, name the substituents according to the alphabetical order. So, according to this, the correct name of the compound is 4-ethyl-1-fluoro-2-nitrobenzene.



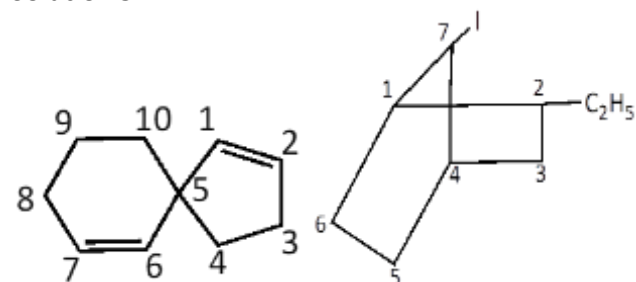
4-ethyl-1-fluoro-2-nitrobenzene

**Solution 4:**

HINT: Number in brackets is in decreasing order.  
Numbering is done in a bigger ring first.

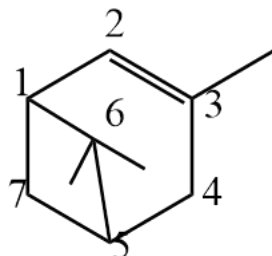


**Solution 5:**



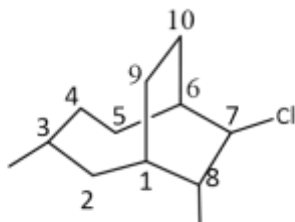
spiro [4, 5] deca-1, 6-diene 2—ethyl-7 iodobicyclo [1. 2. 2] heptane

**Solution 6:**



3, 6, 6-trimethyl bicyclo [3.1.1] hept-2-ene

**Solution 7:**



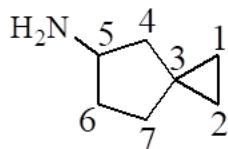
7-chloro-3,8-dimethyl-bicyclo [4.2.2] decane



8-ethyl-6-methyl bicyclo [3.2.1] octane

**Solution 8:**

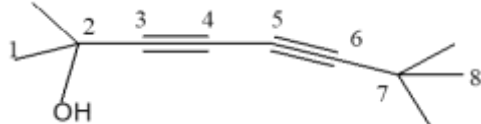
First count the total number of carbons in the entire molecule. This will be the name of parent alkane. Now, count the number of left and right to the spiro carbon center.



5-aminospiro [2, 4] heptane

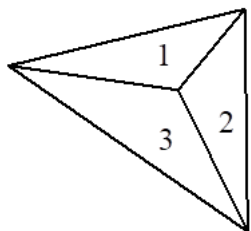
**Solution 9:**

In the given compound, an 8 carbon parent chain consists of a branch of the methyl group at 2,7,7 position on-chain. The functional group -OH is present at 2- position and two triple bonds at 3 and 5 position. So, during IUPAC naming, the suffix 'ol' is used for -OH, and the suffix is- dyne for the triple bond.



2,7,7-trimethyl-3,5-octadiyne-2-ol

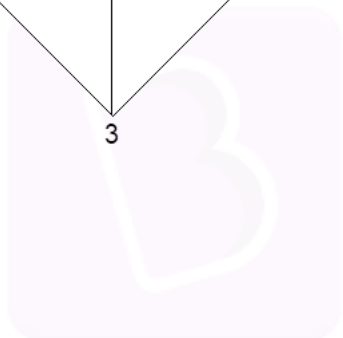
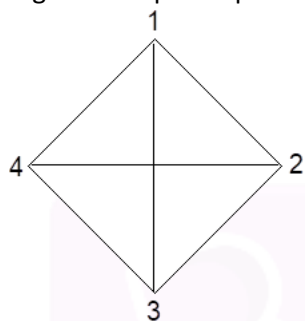
**Solution 10:**



Three rings = Tricyclo

Total number of carbons = 4 so, butane

The numbers in brackets represent the number of atoms between the bridgeheads (main bridge and secondary bridge). 1 and 3 are the main bridge heads. The secondary bridgehead is between 2 and 4. So, it goes as superscript.



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