

Topic : General Organic Chemistry (electronic effect)
Type of Questions
M.M., Min.

Fill in the Blanks ('-1' negative marking) Q.1 (1 to 7)

(3 marks, 3 min.)

[21, 21]

Short Subjective Questions ('-1' negative marking) Q.2(1 to 6)

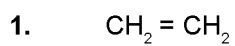
(3 marks, 3 min.)

[18, 18]

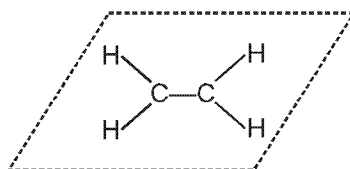
1. Fill up the hybridisation & the ideal bond angles for the respective atoms in blank space.		
	No. of sp^2-sp^2 σ -bonds	No. of sp^2-sp σ -bonds
Hyb. : <input type="text"/> <input type="text"/> <input type="text"/>		
1. $CH_3-CH_2-CH_3$		
B. A : <input type="text"/> <input type="text"/> <input type="text"/>		
Hyb.: <input type="text"/> <input type="text"/> <input type="text"/>		
2. $CH_3-CH=CH_2$		
B. A : <input type="text"/> <input type="text"/> <input type="text"/>		
Hyb.: <input type="text"/> <input type="text"/> <input type="text"/>		
3. $CH_3-C \equiv CH_2$		
B. A : <input type="text"/> <input type="text"/> <input type="text"/>		
Hyb. : <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		
4. $CH_2=CH-CH=CH_2$		
B. A : <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		
Hyb. : <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		
5. $CH_2=CH-CH \equiv CH$		
B. A : <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		
Hyb. : <input type="text"/> <input type="text"/> <input type="text"/>		
6. $CH_2=C=CH_2$		
B. A : <input type="text"/> <input type="text"/> <input type="text"/>		
Hyb. : <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		
7. $CH_2=CH-CH_2-HC=C=CH_2$		
B. A : <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		
Hyb.: <input type="text"/> <input type="text"/> <input type="text"/>		



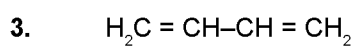
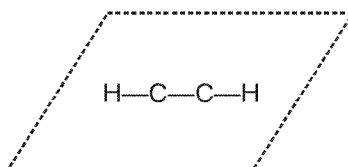
2. Draw the orbital diagrams for the following important structures.



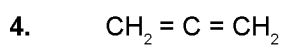
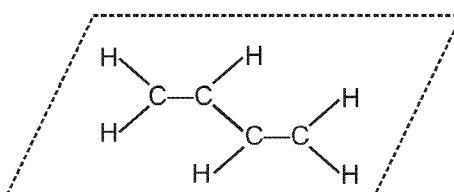
Ethylene



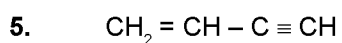
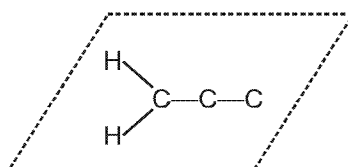
Ethyne



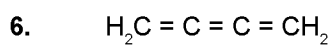
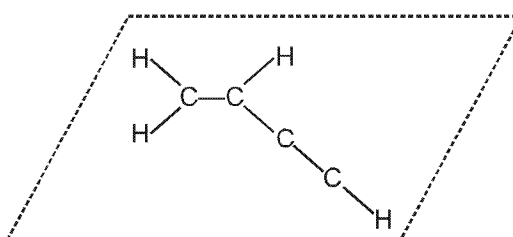
Buta-1,3-diene



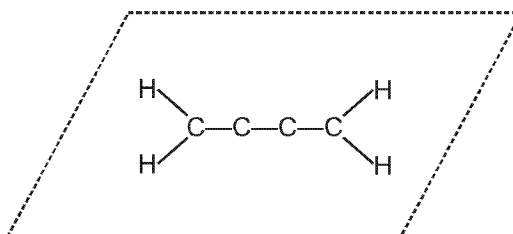
Propadiene



Butenyne



Buta-1,2,3-triene

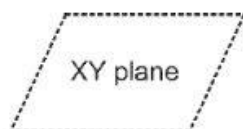


Answer Key

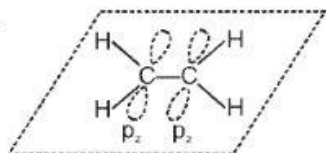
DPP No. # 9

Hyb. : 1. B. A	$sp^3 \quad sp^3 \quad sp^3$ $CH_3-CH_2-CH_3$ $109^\circ \quad 109^\circ \quad 109^\circ$	No. of sp^2-sp^2 σ -bonds 0	No. of sp^2-sp σ -bonds 0
Hyb. 2. B. A	$sp^3 \quad sp^2 \quad sp^2$ $CH_3-CH=CH_2$ $109^\circ \quad 120^\circ \quad 120^\circ$	1	0
Hyb. : 3. B. A	$sp^3 \quad sp \quad sp$ $CH_3-C \equiv CH$ $109^\circ \quad 180^\circ \quad 180^\circ$	0	0
Hyb. : 4. B. A	$sp^2 \quad sp^2 \quad sp^2 \quad sp^2$ $CH_2=CH-CH=CH_2$ $120^\circ \quad 120^\circ \quad 120^\circ \quad 120^\circ$	3	0
Hyb. : 5. B. A	$sp^2 \quad sp^2 \quad sp \quad sp$ $CH_2=CH-C \equiv CH$ $120^\circ \quad 120^\circ \quad 180^\circ \quad 180^\circ$	1	1
Hyb. : 6. B. A	$sp^2 \quad sp \quad sp^2$ $CH_2=C=CH_2$ $120^\circ \quad 180^\circ \quad 120^\circ$	0	2
Hyb. : 7. B. A	$sp^2 \quad sp^2 \quad sp^3 \quad sp^2 \quad sp \quad sp^2$ $CH_2=CH-CH_2-HC=C=CH_2$ $120^\circ \quad 120^\circ \quad 109^\circ \quad 120^\circ \quad 180^\circ \quad 120^\circ$	1	2

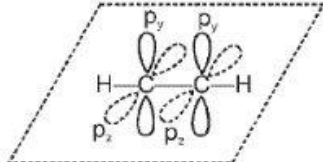
2.



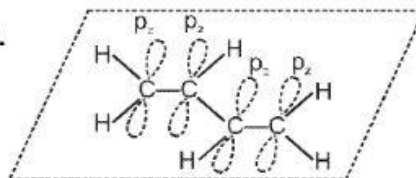
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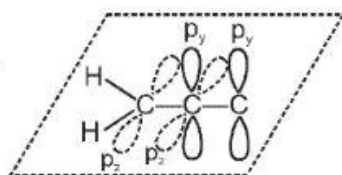
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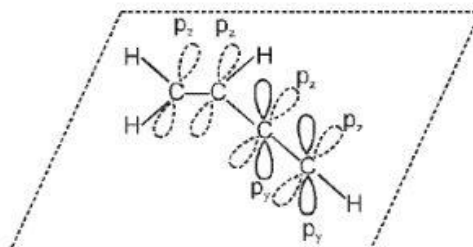
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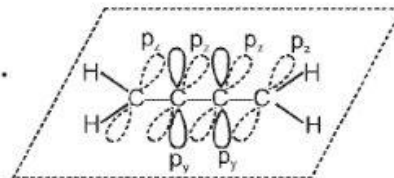
4.



5.



6.

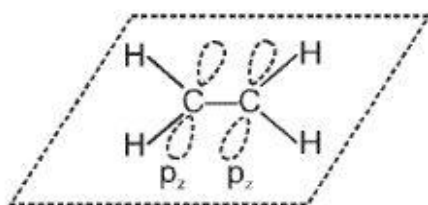


Hints & Solutions

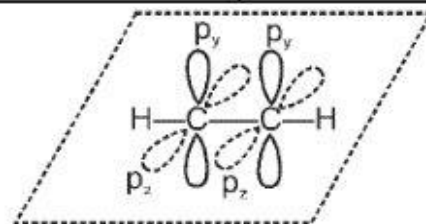
DPP No. # 9

Hyb. : 1. B. A	$sp^3 \quad sp^3 \quad sp^3$ $CH_3-CH_2-CH_3$ $109^\circ \quad 109^\circ \quad 109^\circ$	No. of sp^2-sp^2 σ -bonds 0	No. of sp^2-sp σ -bonds 0
Hyb. 2. B. A	$sp^3 \quad sp^2 \quad sp^2$ $CH_3-CH=CH_2$ $109^\circ \quad 120^\circ \quad 120^\circ$	1	0
Hyb. : 3. B. A	$sp^3 \quad sp \quad sp$ $CH_3-C \equiv CH$ $109^\circ \quad 180^\circ \quad 180^\circ$	0	0
Hyb. : 4. B. A	$sp^2 \quad sp^2 \quad sp^2 \quad sp^2$ $CH_2=CH-CH=CH_2$ $120^\circ \quad 120^\circ \quad 120^\circ \quad 120^\circ$	3	0
Hyb. : 5. B. A	$sp^2 \quad sp^2 \quad sp \quad sp$ $CH_2=CH-C \equiv CH$ $120^\circ \quad 120^\circ \quad 180^\circ \quad 180^\circ$	1	1
Hyb. : 6. B. A	$sp^2 \quad sp \quad sp^2$ $CH_2=C=CH_2$ $120^\circ \quad 180^\circ \quad 120^\circ$	0	2
Hyb. : 7. B. A	$sp^2 \quad sp^2 \quad sp^3 \quad sp^2 \quad sp \quad sp^2$ $CH_2=CH-CH_2-HC=C=CH_2$ $120^\circ \quad 120^\circ \quad 109^\circ \quad 120^\circ \quad 180^\circ \quad 120^\circ$	1	2

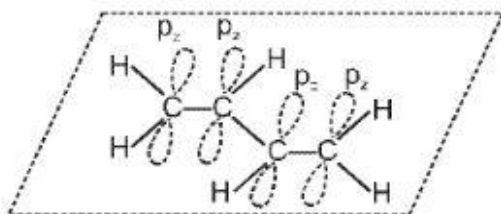
1.



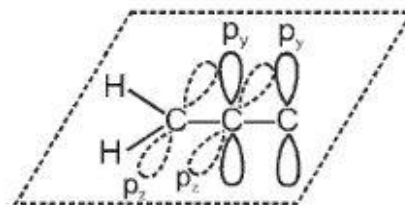
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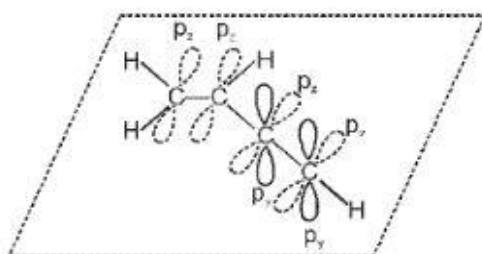
3.



4.



5.



6.

