

Basic Competency Quiz #1

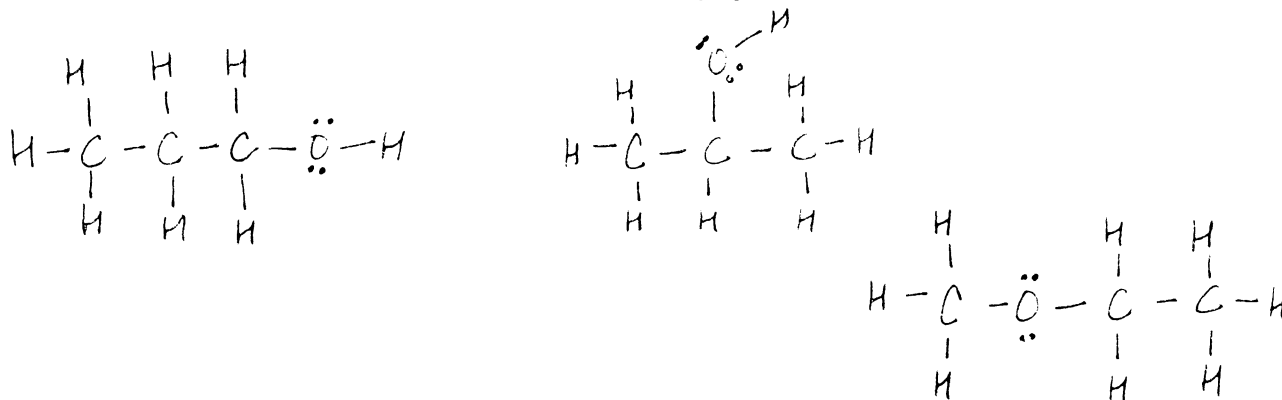
Intro to Organic Chemistry, 3rd ed., Brown & Poon, chapter 1

Wallace

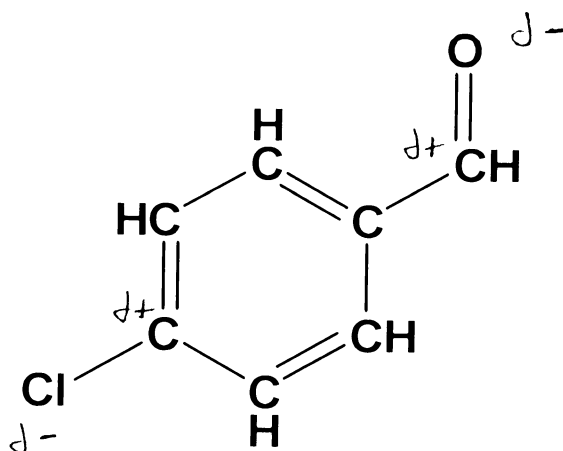
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Unless otherwise specified, each question is worth 4 points.

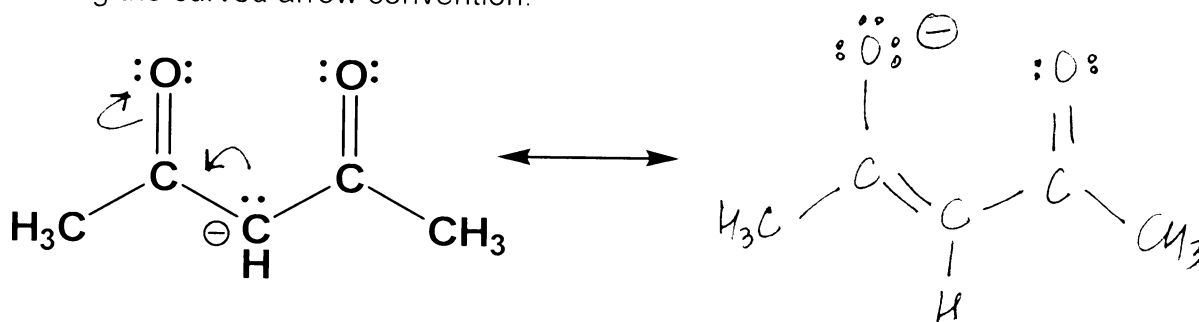
1. Draw Lewis structures for two different isomers of
- C_3H_8O
- .



2. For any polar bond(s) in the molecule below, indicate the polarity using either of the conventions used in the text or class.



3. Draw an additional resonance structure for the following anion. Show the movement of electron pairs using the curved arrow convention.

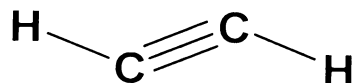


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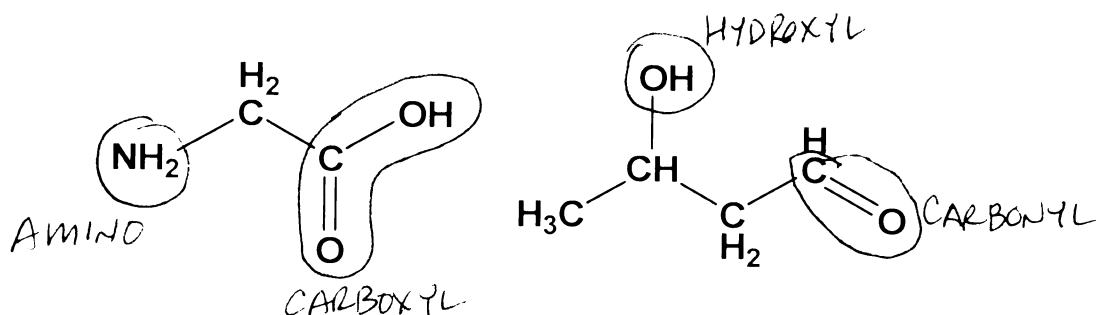
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4. Consider the following molecule:



- a) What are the predicted bond angles on each carbon atom? (1 point) 180°
- b) What is the hybridization of each carbon atom? (2 points) SP
- c) How many pi (π) bonds are shown in this molecule? (1 point) 2
5. Clearly identify any amino, carbonyl, carboxyl, and/or hydroxyl groups that may be part of the molecules shown below.



Abbreviated Periodic Table of the Elements

1																	18		
1A																	8A		
1	2											13	14	15	16	17	2		
H	2A											3A	4A	5A	6A	7A	He		
1.01												5	6	7	8	9	4.00		
3	4											B	C	N	O	F	10		
Li	Be											10.81	12.01	14.01	16.00	19.00	Ne		
6.94	9.01											13	14	15	16	17	18		
11	12	3	4	5	6	7	8	9	10	11	12	Al	Si	P	S	Cl	Ar		
Na	Mg	22.99	24.31	3B	4B	5B	6B	7B	8B	8B	8B	1B	2B	26.98	28.09	30.97	32.07	35.45	39.95
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36		
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr		
39.10	40.08	44.96	47.88	50.94	52.00	54.94	55.85	58.93	58.69	63.55	65.38	69.72	72.59	74.92	78.96	79.90	83.80		
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54		
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe		
85.47	87.62	88.91	91.22	92.91	95.94	(98)	101.1	102.9	106.4	107.9	112.4	114.8	118.7	121.8	127.6	126.9	131.3		
55	56	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86		
Cs	Ba	Lu	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn		
132.9	137.3	175.0	178.5	180.9	183.9	186.2	190.2	192.2	195.1	197.0	200.6	204.4	207.2	209.0	(209)	(210)	(222)		
87	88	103	104	105	106	107	108	109	110	111	112	113	114	115					
Fr	Ra	Lr	Rf	Db	Sg	Bh	Hs	Mt	Uun	Uuu	Uub								
(223)	226	(262)																	
		57	58	59	60	61	62	63	64	65	66	67	68	69	70				
		La	Ce	Pr	Nd														
		138.9	140.1	140.9	144.2														
		89	90	91	92	93	94	95	96	97	98	99	100	101	102				
		Ac	Th	Pa	U	Np	Pu	Am	Cm										
		(227)	232.0	231.0	238.0	(237)	(244)	(243)	(247)										