Physical Science (PSC 102) Fall 18 Dr. Hahn MWF 9 am Quiz IV form A 10/17 W Exam # _____

Name __*Key*__   Name _____
Sign   Print (bc I can't read your signatures)

Please show work for full credit and partial credit on all questions   *green* *attempt -½*

1.   a. 1 mole of Ca = __40.08__ grams (2 pts)   *BA -1*

   b. 1 mole of Ca Cl₂ = __110.98__ grams show work (2 pts) — *NW + wrong*

$$40.08 + 2(35.45) = 110.98$$ *# -2*

   c. What is the molarity of a solution made by dissolving 0.5 moles of Na Cl in water to make up 1.5 Liters of the salt solution? (Molarity = moles solute / liters of solution) (2 pts)

$$M = \frac{0.5 \; mol}{1.5 \; L} = 0.33 \; M$$ *math -½*

2.   Fill in the blank to match the structure & name. (A) alkyne (B) benzene (C) Alkane (D) alkene (8 pts, 2 pts each blank)
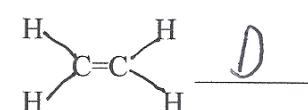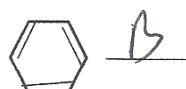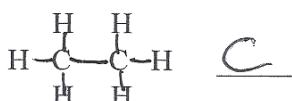
3.   Draw the structure of 1,3- difluorobenzene (F subsitutuent is flouro) (3 pts)

   attempt -½ *BA -1½*

4.   Show one constitutional isomer of the following molecule (3 pts)

   6 carbon molecule

BA -1½

Extra Credit   (4 pts)

Show the product of the following reaction.   *attempt -½*

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Please show work for full credit and partial credit on all questions *(attempt -½)*

1.   a. 1 mole of Mg = __24.31__ grams (2 pts)

   b. 1 mole of   Mg F$_2$ = __62.31__ grams show work (2 pts) *(BA -1)*

   $$24.31 + 2(19.00) = 62.31$$ *(NW+ wrong # -2)*

   c. What is the molarity of a solution made by dissolving 1.2   moles of Na Cl in water to make up
       2.1   Liters of the salt solution ?   (Molarity = moles solute / liters of solution)   (2 pts)

 $$\frac{1.2 \text{ mol NaCl}}{2.1 \text{ liters}} = 0.57 \text{ M}$$ *(math -½)*

2.   Fill in the blank to match the structure & name. (A) benzene (B) Alkane   (C) alkene   (D) alkyne
(8 pts, 2 pts each blank)
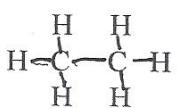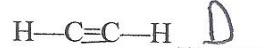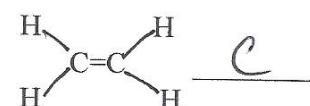
H–C–C–H __B__   H—C≡C—H __D__   ⬡ __A__   (C=C structure) __C__

3.   Draw the structure of 2,3,4-tribromopentane (pentane has 5 C, Br substituent is bromo) (3 pts)
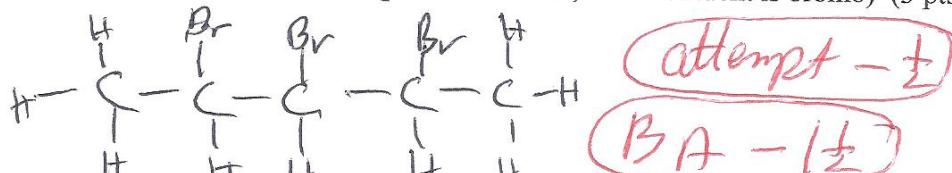
(attempt -½)
(BA -1½)
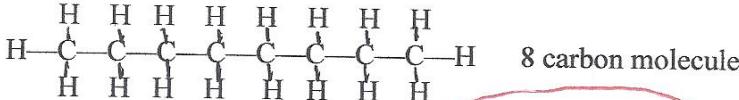
4.   Show one constitutional isomer of the following molecule (3 pts)

H–C–C–C–C–C–C–C–C–H   8 carbon molecule

(BA -1½)
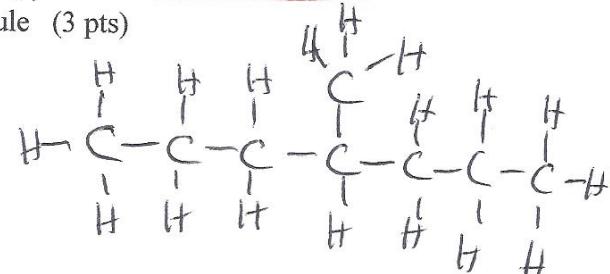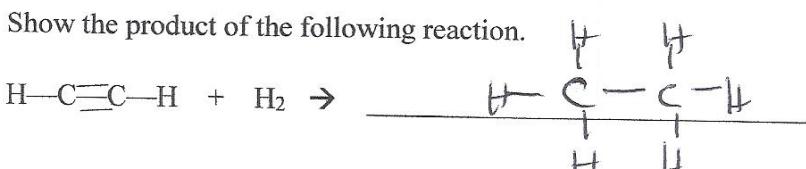
Extra Credit   (4 pts)

Show the product of the following reaction.   *(attempt -½)*

H—C≡C—H + H$_2$ → ___H–C–C–H (with H's)___

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**Please show work** for full credit and partial credit on all questions

1.   a. 1 mole of S = __32.07__ grams (2 pts)

    attempt -½

   b. 1 mole of Na_2 S = __78.07__ grams show work (2 pts) *BA -1*

$$2(23.00) + 32.07 = 78.07$$

Nwt wrong # -2

   c. What is the molarity of a solution made by dissolving 2.5 moles of Na Cl in water to make up 3.2 Liters of the salt solution ? (Molarity = moles solute / liters of solution) (2 pts)

$$\frac{2.5 \, mol \, NaCl}{3.2 \, l} = 0.78 \, M$$ *math -½*

2. Fill in the blank to match the structure & name. (A) alkene (B) alkyne (C) benzene (D) Alkane
(8 pts, 2 pts each blank)
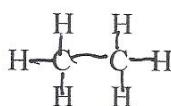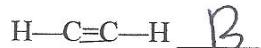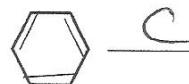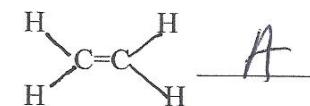
   __D__   H—C≡C—H __B__   __C__   __A__

3. Draw the structure of 3,4-dimethylhexane (hexane has 6 C, methyl substituent is CH_3—) (3 pts)
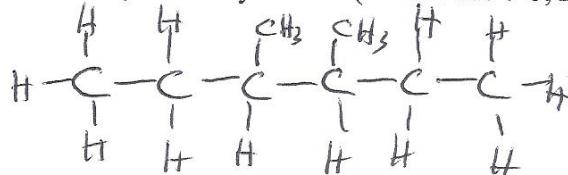
attempt -½
BA -1½
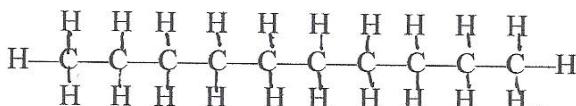
4. Show one constitutional isomer of the following molecule (3 pts)

10 carbon molecule
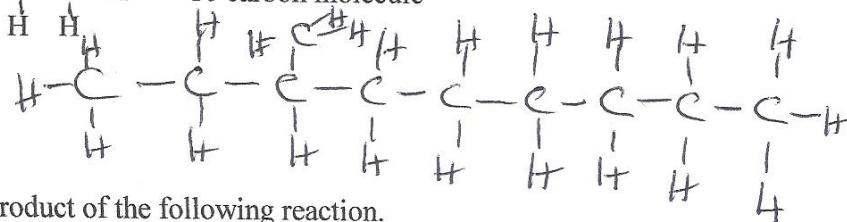
BA -1½
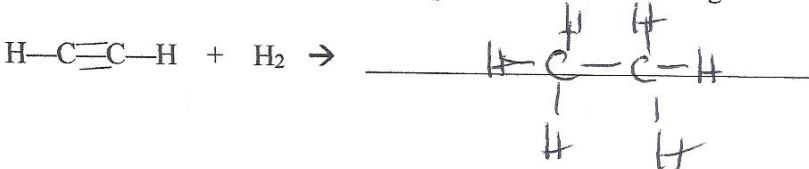
Extra Credit (4 pts) Show the product of the following reaction.

H—C≡C—H + H_2 →

attempt -½

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Please show work for full credit and partial credit on all questions green

1. a. 1 mole of N = __14.01__ grams (2 pts)

    attempt $-\frac{1}{2}$
    BA -1

    b. 1 mole of Li$_3$N = __34.83__ grams show work (2 pts)

    $3(6.94) + 14.01 = 34.83$

    Nwt wrong # -2

    c. What is the molarity of a solution made by dissolving 3.6 moles of Na Cl in water to make up 1.2 Liters of the salt solution? (Molarity = moles solute / liters of solution) (2 pts)

    $$\frac{3.6\ mol\ NaCl}{1.2\ l} = 3.0\ M$$ *math $-\frac{1}{2}$*

2. Fill in the blank to match the structure & name. (A) benzene (B) alkyne (C) Alkane (D) alkene
    (8 pts, 2 pts each blank)
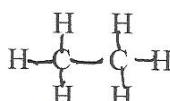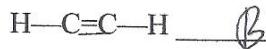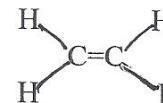

   __C__   H—C≡C—H __B__   __A__   __D__

3. Draw the structure of 2,3-dimethylbenzene (methyl substituent is CH$_3$—) (3 pts)
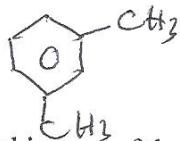
    attempt $-\frac{1}{2}$
    BA $-1\frac{1}{2}$

4. Show one constitutional isomer of the following molecule (3 pts)

    BA $-1\frac{1}{2}$
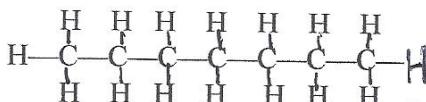
    7 carbon molecule

Extra Credit (4 pts) Show the product of the following reaction.

    attempt $-\frac{1}{2}$