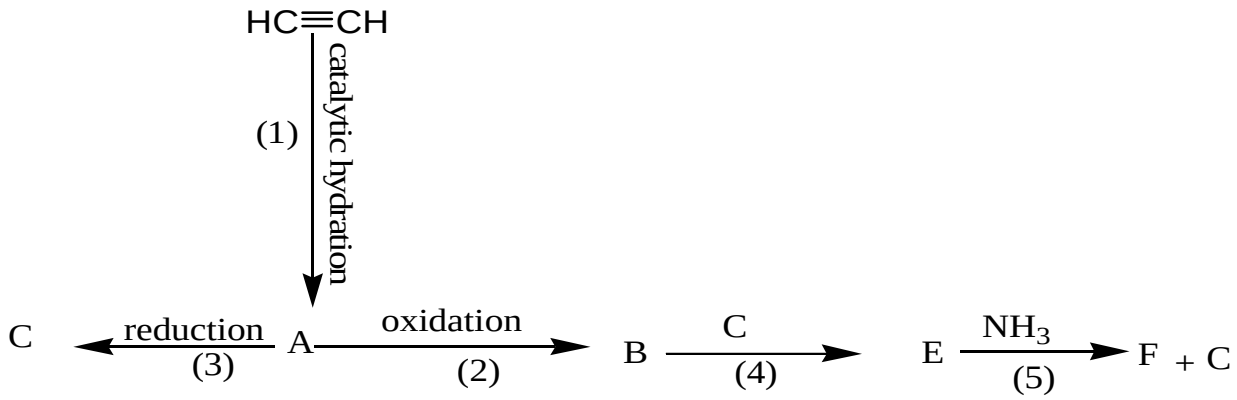
# General questions on organic chemistry

Question 1

Study the following diagrams then answer the questions below




(1) What are A,B,C,E,F
*(2)* What is the name of reactions from 2 – 5
*(3)* Write the conditions of reactions (1)&(2) & (4)
*(4)* How can you test for B practically
*(5)* Write one use for C

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Question 2

$C_3H_7Br$ has two isomers----------

(1) Write the structural formula of each isomer
*(2)* What is the result of hydrolysis of each isomer
*(3)* What is the effect of acidifies $KMnO_4$ on each one of the result of step (2)
*(4)* Write the functional group of the product from the above step

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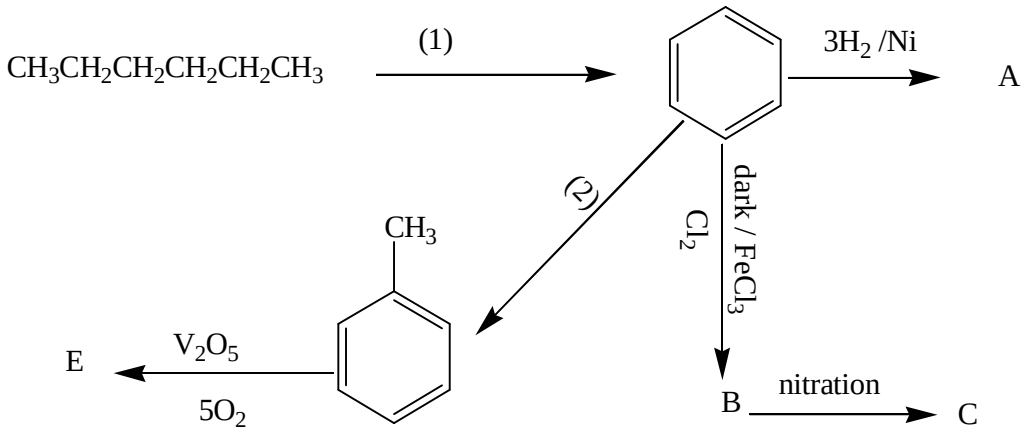
Question 3

Write the structural formula of the following compounds

(1) The compound that is used in dry cleaning
*(2)* Picric acid
*(3)* Terphethalic acid
*(4)* Acetamide
*(5)* Benzamide

(6) Ethyl acetate
(7) Maroukh oil
(8) Aspirin
(9) Oxalic acid
(10) T.N.T
(11) Sodium phenate
(12) Taflon

Question 4




a. What are A,B,C,E.
b. Write the name of reaction 1,2 and state the condition
c. How can you test for E practically?
d. From E how to obtain benzamide

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Question 5

Firstly: Explain by chemical equations what happens on heating mixture of slaked lime and ammonium chloride then passing the evolved gas in a tube contains ethyl acetate

Secondly: choose first form the following tools and chemical to prepare acetone, and then write the chemical equations.

Propene – ethanal – ethanol – potassium dichromate – HCl – caustic soda solution – conc sulphuric acid – heat

Question 6

Firstly: write scientific explanation for?

(1) Both glucose and fructose are isomers?
(2) The chemical reactivity of cylcopropane
(3) Doctors advice patient to take aspirin dissolved in water or in the form of powder after meals

Secondly: Correct the underlined words.

(1) Ammonolysis of ethyl acetate produces alcohol and *ethyl amine*.
(2) Dry distillation of $C_3H_7COOH$ with soda lime produces *methane*
(3) Hydrolysis of mono chlorobenzne produces *catechole*
(4) Oxidation of secondary alcohol produces *carboxylic acid*
(5) The functional group in ketone is *formyl*
(6) On adding HCl to propene *propyl chloride is formed*
(7) The angle between hybrid orbitals in normal butane is *60*

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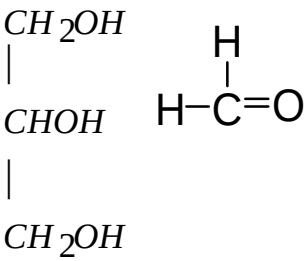
Question 7

Firstly: What is role of?

(1) Oxygen in polymerization of ethene.
(2) Copper sulphate in preparation of ethyne
(3) Caustic soda in preparation of alcohol from alkyl halides
(4) Sulphuric acid in preparation of ester

Secondly: write one use for the following?



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Question 8

Answer the following

Firstly: How can you differentiate between?

(1) Acetic acid and ethyl acetate
(2) Ethanol and 2,methyl 2- butanol

(3) Methane and ethene
(4) Phenol and benzoic acid
(5) Benzoic acid and benzene

Secondly choose from column A, the suitable from column B&C

| A | B | C |
|---|---|---|
| (1) Ethanol<br>(2) Isopropanol<br>(3) Glycerol<br>(4) Ethyne<br>(5) Ethanoic acid<br>(6) Benzene<br>(7) aspirin | (a) Reacts by addition and substitution<br>(b) Can form three hydrogen bond<br>(c) Is a polyhydric alcohol<br>(d) Is primary alcohol<br>(e) Can be prepared by hydrolysis of propene<br>(f) Is an alkyne<br>(g) Is prepared by oxidation of ethanal<br>(h) Is acetyl salicylic acid | I. Its functional group is carboxylic<br>II. is an aromatic hydrocarbon<br>III. is a secondary alcohol<br>IV. the hybridization of carbon atom in this molecule is sp<br>V. is a petrochemical compound<br>VI. is trihydric alcohol<br>VII. it hydrolyzes into acetic and salicylic acid |

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Question 9

Choose the correct answer

(1) Dry distillation of the compound $C_3H_7COONa$ with soda lime produces (benzene – butane – propane – methane)
(2) Adding chlorine water to iron filling followed by addition phenolic water, the solution will be (pale green – violet – red brown – white gelatinous)
(3) Converting normal hexane to benzene is called ----------
    a. Cyclic polymerization
    b. Catalytic hydration
    c. Catalytic reforming
    d. Oxidation
(4) To obtain ethanoic acid from ethyne the following must be done -------
    a. Catalytic hydration then oxidation
    b. Catalytic hydration then reduction

c. Catalytic hydration then dry distillation
d. Hydrolysis then fermentation

(5) To obtain ethanol from sucrose the following must be carried out ------
a. Hydrolysis then fermentation
b. Fermentation then oxidation
c. Reduction then fermentation
d. Hydrolysis then oxidation

(6) The carbonyl group is the functional group of (aldehyde – ketone – carboxylic acids – alcohol)

(7) Passing ethene gas through alkaline solution of potassium permanganate produces (ethanol – dihydric alcohol – ethyne – no reaction)

(8) Adding HCl to propene produces (propyl chloride – 2, chloro propane – 1, chloro propane – acetone)

(9) Adding acidified $KMnO_4$ to the product of hydrolysis of 2, chloro propane, we obtain (ethanal – ethanol – propanol – propanone – isopropanol)

(10) Oxidation of toluene using $V_2O_5$ as catalyst produces (benzaldehyde – benzoic acid – phenol – phthalic acid)

(11) From carboxylic acid which is dibasic is (ethanoic acid – oxalic acid – salicylic acid – lactic acid)

(12) Maroukh oil (oil of winter green) is (aspirin – salicylic acid – methyl salicylate – citric acid)

(13) The acid that is produced by distillation of crushed ants is (ethanoic acid – formic acid – tartaric acid – butyric acid)

(14) The detergent is (sulphonic acid – alkyl sodium salt – sodium salt of sulphonic acid compound)

(15) From the meta directing group is (carboxylic – hydroxyl – amino – alkyl)

(16) Picric acid is the name of (T.N.T – trinitro phenol – trinitroglycerin – phenol)

(17) The most active compound from the following is ( cyclo propane – cyclo butane – normal propane – cyclo pentane)

(18) Nitration of benzene followed by chlorination the final product is (meta chloro nitrobenzene – para chloro nitrobenzene – ortho chloro nitrobenzene )

(19) 1,2,3 trihydroxy benzene is the name of (phenol – carbolic acid – catechol – pyrogalol)

(20) glucose if an example for----------
a. poly hydroxyl aldehyde
b. polyhydroxyl ketone
c. poly hydric alcohol

d. hydrocarbon

(21) Sorbitol is (mono hydric – tertiary – poly hydric – dihydric) alcohol
(22) Hydrolysis of ethyl hydrogen sulphate produces (ethanol – ethene – ether – ethanal)
(23) Catalytic hydration of ethyne produces (benzene – ethanal – ethanol – ethanoic acid)
(24) Ammonolysis of ethyl acetate produces ethanol and ( ethyl amine – amino acid – acetamide – benzamide)
(25) Hydrolysis of methyl propene produces ( propanol – isopropanol – 2, methyl propanol – 2, methyl 2, propanol)
(26) Reaction of formaldehyde with phenol is an example for (addition – condensation – cyclic – linear) polymerization
(27) Reaction of organic acid with alcohol in presence of dehydration agent is an example for ( hydration – oxidation – neutralization – esterification)
(28) Glycin is (hydroxyl acid – amino acid – dibasic acid – aromatic acid)
(29) Natural polymer formed from condensation amino acids is (protein – oil – carbohydrates – polyester)
(30) All the following esters except
($C_2H_5OCH_3 - CH_3COOC_2H_5 - HCOOCH_3 - C_6H_5COOCH_3$)
(31) The isomers of methyl formate is (acetic acid – methyl acetate – ethyl acetate – phenyl acetate)

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*Question 10*

*How can you obtain?*

*(1)* Dihydric alcohol from mono hydric alcohol
*(2)* Secondary alcohol from primary alcohol
*(3)* Acetone from propene
*(4)* Benzene from toluene
*(5)* Phenol from hexane
*(6)* Picric acid from chlorobenzene
*(7)* Ethane from acetic acid
*(8)* Ethene from acetic acid
*(9)* Ethyl benzoate from benzoic acid
*(10)* Methane from ethene
*(11)* Diethyl ether from ethyl chloride
*(12)* Benzamide from toluene

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Question 11

What is the effect of?

(1) Acidified potassium permanganate on methanol?
(2) Reaction of formaldehyde with phenol in presence of ammonia?
(3) Dry distillation of sodium acetate with soda lime
(4) Hydrolysis of aspirin
(5) Passing ethene gas through alkaline solution of potassium permanganate
(6) Adding HCl to propene
(7) Adding HBr to vinyl bromide
(8) Halogenation of aromatic benzene in the direct sun light
(9) Alkylation of benzene then oxidation the product
(10) Nitration of benzoic acid
(11) Nitration of glycerin

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Question 12

Write the structural formula of the following?

(1) Catechol
(2) Pyrogalol
(3) Picric acid
(4) The starting material of taflon
(5) The primary material of Dacron
(6) The isomer of methyl formate
(7) The product of nitration of chloro benzene
(8) Phthalic acid
(9) Oxalic acid
(10) Terphthalic acid

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Question 13

A, B, C are three organic aliphatic compounds

- A is produced by adding acidified potassium dichromate to secondary alcohol

- B makes effervescence with sodium bicarbonate

- C is oxidized to form B

answer the following.

(1) What is the functional group of A,B,C
(2) From B how can you obtain C
(3) write one use for the compound A
(4) how can you differentiate between A&C