

الكيمياء لغات للثانوية العامة

1 By using the following diagram :



(Where each one mole of the compound (B) contains 12 moles of atoms)

So, these compounds (A), (B) and (C) are

(a) (A) is 2 – Bromopropane, (B) isopropyl alcohol, (C) is propanoic acid

(b) (A) is Ethyl chloride, (B) is ethyl alcohol, (C) is acetaldehyde

(c) (A) is 2 – Bromopropane, (B) Iso-propyl alcohol, (C) is Acetone

(d) (A) is Ethyl chloride, (B) is ethyl alcohol, (C) is Acetic acid

2 The pair of the following from which its first member starts by three carbon atoms is

(a) aldehydes / ketones

(b) esters / ketones

(c) ketones / cycloalkanes

(d) cycloalkanes / esters

3

A, B and C are 3 compounds: on adding (A) to the compound (C) a food flavor is produced, and on adding sodium hydroxide to (B) or (C) a reaction occurs while on adding it to (A) no reaction occurs, then the three compounds are

(a) A: acid, B: alcohol, C: phenol

(b) A: alcohol, B: phenol, C: acid

(c) A: phenol, B: alcohol, C : acid

(d) A: acid, B: phenol, C: alcohol

4

Primary alcohol can be obtained from secondary alcohol by

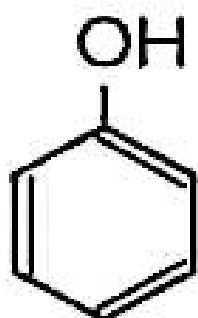
(a) Dehydration / catalytic hydration

(b) Dehydration / addition of HBr / alkaline hydrolysis

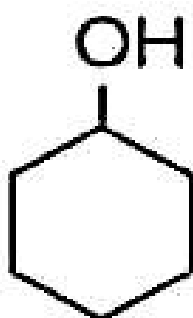
(c) Dehydration / halogenation / alkaline hydrolysis

(d) Dehydration / hydrogenation / halogenation / alkaline hydrolysis

5 Iron III chloride solution with faint yellow color is added to each of :



A



B

KOH
C

NH_4SCN
D

- Which of the following represents the changes which happened?

Choice	A	B	C	D
(a)	Violet	Violet	Reddish brown ppt.	Blood red
(b)	Faint	Violet	Blood red	Reddish brown ppt.
(c)	Violet	Colorless	Reddish brown ppt.	Blood red
(d)	Violet	Faint yellow	Reddish brown ppt.	Blood red

6 Alkaline hydrolysis of an ester its molecular formula $C_3H_6O_2$ may give all the following except

- (a) Ethanol
- (b) Methanol
- (c) Sodium formate
- (d) Sodium propanoate

7 Which of the following choices represents obtaining of bromoethane from sodium ethoxide?

- (a) Hydrolysis / catalytic hydration / halogenation with bromine water
- (b) Hydrolysis / complete oxidation / neutralization / dry distillation / halogenation
- (c) Hydrolysis / catalytic hydration / hydrogenation / halogenation
- (d) Hydrolysis / dehydration / addition of HBr

8 What is the organic compound which is produced from dry distil-

lation of the product from alkaline hydrolysis of ethyl acetate?

- (a) Methane (b) Ethane
(c) Acetic acid (d) Aromatic benzene

9 A compound (X) with molecular formula C_3H_8O can be oxidized into a compound (Y) its molecular formula $C_3H_6O_2$ so, the compound (X) may be

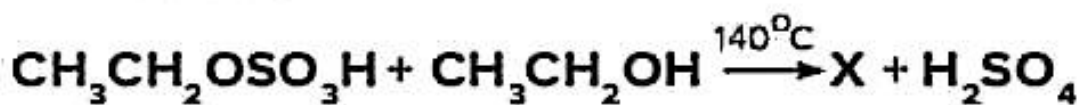
- (a) primary alcohol
(b) secondary alcohol
(c) aldehyde
(d) ketone

10 Methanol can be obtained from ethanol by

- (a) Dehydration / hydrogenation / halogenation / alkaline hydrolysis
(b) Dehydration / addition of HBr / alkaline hydrolysis
(c) Oxidation / neutralization / dry distillation / rapid quenching
(d) Oxidation / neutralization / dry distillation / halogenation / alkaline hydrolysis

11

What is the structural formula of the organic compound (X) which is produced from the following reaction :



- (a) $\text{CH}_3\text{CH}_2\text{OH}$
- (b) CH_2CH_2
- (c) $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$
- (d) $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$

12

What happens on heating chromic acid with methanol in water bath?.....

- (a) The color of the solution converted into orange and methanoic acid is formed
- (b) The color of the solution converted into green and methanoic acid is formed
- (c) The color of the solution converted into orange and methanal is formed
- (d) The color of the solution converted into green and methanone is formed

13

What is the IUPAC name of that compound CH_3CHOH ?



- (a) Ethanol benzene
- (b) Hydroxyl ethyl benzene
- (c) 2 – phenyl ethanol
- (d) 1 – phenyl ethanol

Faima Farouk

14

Ester with molar mass 74 g/mol. and the mass of one alkyl group in it equals 15 g/mol. so, the molar mass of the other alkyl group equals [C = 12 , O = 16 , H = 1]

- (a) 59 g/mol
- (b) 43 g/mol
- (c) 29 g/mol
- (d) 15 g/mol

15

Ethyl alcohol can be obtained by all the following methods except

.....

- (a) Hydrolysis of sodium ethoxide
- (b) Alkaline hydrolysis of ethyl iodide
- (c) Acidic hydrolysis of sucrose
- (d) Alkaline hydrolysis of chloro ethane

FatmaFarouk

16

Putting yeast on glucose sugar forms a liquid and a gas, and by passing this gas in calcium hydroxide solution for long time, is formed.

- (a) calcium carbonate
- (b) carbon dioxide
- (c) calcium bicarbonate
- (d) carbonic acid

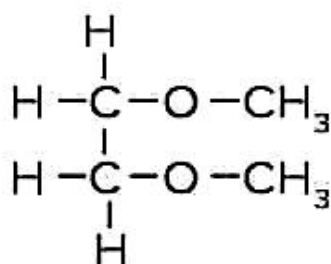
17 Complete oxidation of ethylene glycol gives

- (a) 2-hydroxyacetic acid
- (b) ethanal
- (c) ethanoic acid
- (d) oxalic acid

18 What happens on adding one mole of hydrogen to one mole of ketone?...

- (a) No reaction happens
- (b) Reacts forming primary alcohol
- (c) Reacts forming secondary alcohol
- (d) Reacts forming tertiary alcohol

19 The opposite structure is produced at 140°C from a reaction of



- (a) 4 molecules of methanol
- (b) 2 molecules of ethanol
- (c) 1 molecule of ethylene glycol with 2 molecules of methanol
- (d) 2 molecules of ethylene glycol

20 Acidified potassium permanganate is used to differentiate between all the following except.....

(a) 1 – propanol / 2 – propanol

(b) 1 – butanol / 2 – methyl – 2 – propanol

(c) 1 – butanol / butanoic acid

(d) 2 – pentanol / propanone

21 The solution which has the largest concentration of $[H^+]$ from the following solutions which have the same concentration is

(a) C_6H_5OH

(b) CH_3COOH

(c) C_6H_5COOH

(d) CH_3CH_2OH

22 The general formula for a compound RCH_2OH is similar to the general formula for a compound

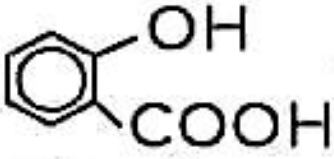
(a) $R - O - R$

(b) $R - O - Ar$

(c) $Ar - O - Ar$

(d) $Ar - OH$

23 Detection of salicylic acid

 can be done by all the following except

- (a) Iron III chloride solution
- (b) Ethyl alcohol
- (c) Sodium bicarbonate
- (d) Acidified potassium permanganate

24 On adding water to sodium ethoxide then adding acetic acid to the produced organic compound, is formed.

- (a) organic polymer
- (b) organic ester
- (c) primary alcohol
- (d) aldehyde

25 One of the following isomers of the molecular formula C_4H_9Br from which 2 - methyl - 2 - pro-

panol is produced by hydrolysis in alkaline medium is

- (a) $C_2H_5CHBrCH_3$
- (b) $CH_3CH(CH_3)CH_2Br$
- (c) $CH_3(CH_2)_2CH_2Br$
- (d) $(CH_3)_3CBr$

26 The only primary alcohol which is produced from catalytic hydration of alkenes is alcohol.

- (a) methyl
- (b) ethyl
- (c) propyl
- (d) butyl

27 Which group of the following compounds its first member starts by two carbon atoms?

- (a) Alkenes – Alkynes – Cycloalkanes
- (b) Alkenes – Ketones – Esters
- (c) Alkynes – Esters – Aldehydes
- (d) Alkenes – Alkynes – Esters

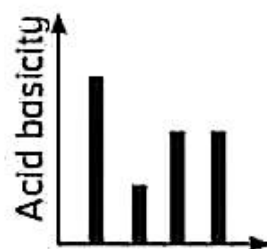
28 Sodium benzoate can be obtained by all the following methods except.....

- (a) Acidity test for benzoic acid by sodium bicarbonate
- (b) Neutralization of benzoic acid by caustic soda
- (c) hydrolysis of methyl benzoate in acidic medium
- (d) Alkaline hydrolysis of methyl benzoate in presence of sodium hydroxide

29 What is the product of reacting hydrogen chloride with the thermometric substance which used in cold areas?

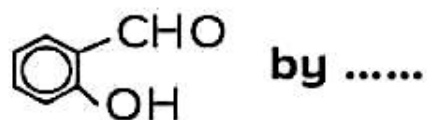
- (a) Chlorine gas
- (b) Ethanol
- (c) Ethyl chloride
- (d) Methyl chloride

30 If B is benzoic acid so, A will be acid.



- (a) phthalic
- (b) terphthalic
- (c) citric
- (d) acetic

31 Aspirin can be obtained from 2 – hydroxyl benzaldehyde



- (a) reduction then reaction with acetic acid
- (b) reduction then reaction with methanol
- (c) oxidation then reaction with methanol
- (d) oxidation then reaction with acetic acid

32 Which pair from the following is considered as alcohol and acid in the same time?

- (a) Lactic acid / citric acid
- (b) Aspirin / salicylic acid
- (c) Marookh oil / citric acid
- (d) Aspirin / Marookh oil

33 Which of the following uses is correct?

- (a) Sulphuric acid is used to remove water on esterification of benzoic acid with ethanol
- (b) Chloroform is used in surgical operations nowadays

© bromine water is used to differentiate between propene and propyne gases

© Iron III chloride is used to differentiate between Marookh oil and aspirin

Fairna Farouk

34 We can prepare the ester which is the isomer of the compound $\text{CH}_3\text{COOCH}_3$ from

© acetic acid with methyl alcohol

© formic acid with methyl alcohol

© acetic acid with ethyl alcohol

© formic acid with ethyl alcohol

35 Formic acid can be obtained from acetic acid by

© Neutralization / dry distillation / rapid quenching / hydration

© Neutralization / dry distillation / halogenation / alkaline hydroly-

© Neutralization / dry distillation / rapid quenching / alkaline hydrolysis / oxidation

© Neutralization / dry distillation / halogenation / alkaline hydrolysis / oxidation

36 Primary alcohol its molar mass is 60 g/mole is oxidized into while its isomer is oxidized into(C=12,O=16,H=1)

- Ⓐ propanoic acid – acetone
- Ⓑ propanal – acetaldehyde
- Ⓒ ethanoic acid – propanone
- Ⓓ acetic acid - acetamide

Fatma Farouk

37 Which of the following is produced on performing the following processes on sucrose with the following arrangement : (acidic hydrolysis – fermentation – dehydration – hydrogenation)?

- Ⓐ Ethene
- Ⓑ Ethane
- Ⓒ Ethyne
- Ⓓ Methane

38 On adding hydrogen bromide HBr to propene then hydrolyze the product in alkaline medium gives the same product of of propene.

- Ⓐ oxidation
- Ⓑ halogenation
- Ⓒ hydration
- Ⓓ hydrogenation

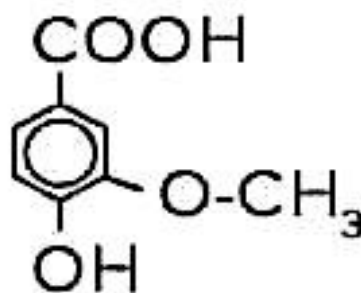
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On alkaline hydrolysis of the compound C_3H_7Br which doesn't contain methylene group, the produced compound is

- (a) primary alcohol only
- (b) secondary alcohol only
- (c) primary or secondary alcohol
- (d) primary alcohol or tertiary alcohol

40

Vanilla is an organic compound has the shown structural formula.
- Which classes does vanilla belong to ?



- (a) Acid, ester and ether
- (b) Acid ester and phenol
- (c) Acid, ether and alcohol
- (d) Acid, ether and phenol

41

The aliphatic hydrocarbon derivative which contains the group ($> \text{CH} - \text{OH}$), reacts with concentrated strong mineral acid to prepare asymmetric alkene, so the alkene is

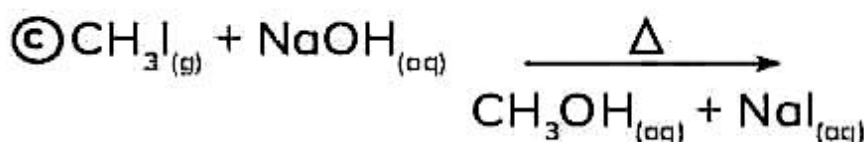
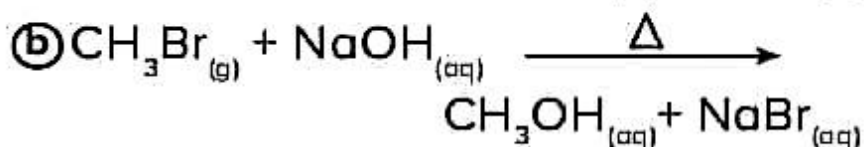
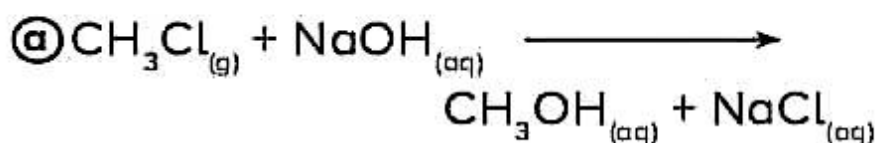
- (a) 2-ethyl-1-butene
- (b) ethene
- (c) propene
- (d) 2 – methyl propene

42 What is the number and the type of the isomers for the molecular formula $C_4H_{10}O$?

- (a) 2 alcohols / 2 ethers
- (b) 3 alcohols / 2 ethers
- (c) 3 alcohols / 4 ethers
- (d) 4 alcohols / 3 ethers

FATMA FAROUK

43 Which of the following preparation reactions of methanol is easier to take place?...

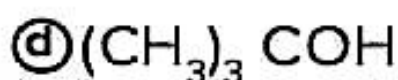
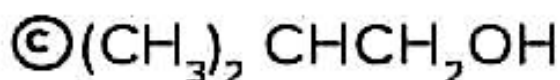
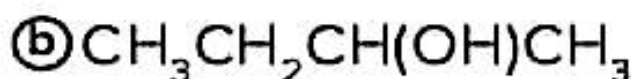
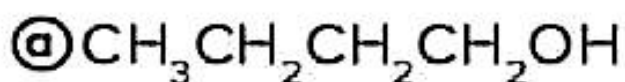


- (d) all of them have same rate

44 What is the correct IUPAC name of the compound (3 - ethyl - 2 - butanol)?

- (a) 2 - ethyl - 3- butanol
- (b) 2 - ethyl - 2 - butanol
- (c) 2 - methyl - 3 - pentanol
- (d) 3 - methyl - 2 - pentanol

45 What is the alcohol which is difficult to be oxidized by normal oxidizing agents from the following ?



46 On catalytic hydration of ethene then eliminate water molecule from two molecules of the product under certain conditions.

- What are these conditions? And what is the reaction product?

Choice	The suitable conditions	Reaction product
Ⓐ	Sulphuric acid at 180°C	Ethene
Ⓑ	Sulphuric acid at 140°C	Dimethyl ether
Ⓒ	Sulphuric acid at 140°C	Normal ether
Ⓓ	Sulphuric acid at 80°C	Ethyl hydrogen sulphate

- 47 Alkaline hydrolysis of 1,2-dichlorobenzene gives
- (a) phenol (b) catechol
- (c) pyrogallol (d) toluene

- 48 The ester which gives benzamide on its ammonolysis is
- (a) $C_6H_5COOCH_3$
- (b) $C_2H_5COOCH_3$
- (c) $CH_3COOC_6H_5$
- (d) $C_2H_5COOC_2H_5$

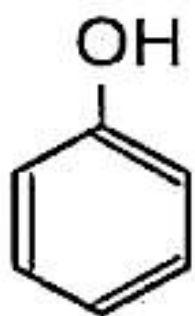
- 49 The correct arrangement of the written compounds according to their boiling points is
- (a) propanoic acid > propanol > methyl acetate
- (b) propanol > methyl acetate > propanoic acid
- (c) methyl acetate > propanol > propanoic acid
- (d) methyl acetate > propanoic acid > propanol

50 We can obtain an explosive substance from benzene through the following steps

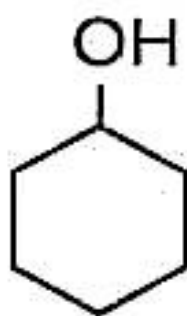
- (a) Alkaline hydrolysis / chlorination / nitration
- (b) Nitration / alkaline hydrolysis / chlorination
- (c) Chlorination / alkaline hydrolysis / nitration
- (d) Chlorination / alkaline hydrolysis / alkylation

51 A and B are from the hydroxyl organic compounds.

- Which of the following sentences is correct?



A



B

FaizmaFaiouk

Choice	More acidity	Easy oxidation	Reacts with red bromine in UV	Change FeCl_3 into violet
Ⓐ	A	A	A	A
Ⓑ	B	B	B	B
Ⓒ	A	B	A	A
Ⓓ	B	A	A	A

52 What is the correct arrangement of the following processes to obtain picric acid from sodium benzoate?

(1) Nitration (2) Halogenation (3) Alkaline hydrolysis (4) Dry distillation

Ⓐ (2) / (3) / (4) / (1)

Ⓑ (1) / (4) / (2) / (3)

Ⓒ (4) / (3) / (2) / (1)

Ⓓ (4) / (2) / (3) / (1)

53 What is the chemical name of the produced ester from a reaction of dibasic acid with dihydric alcohol?

Ⓐ Oil

Ⓑ Fat

Ⓒ Dacron

Ⓓ Aspirin

54 What is the organic compound which is produced from the dry distillation for the product of alkaline hydrolysis of ethyl benzoate?

- (a) Methane
- (b) Ethane
- (c) Benzoic acid
- (d) Aromatic benzene

55 All the following are considered as isomers for secondary butyl alcohol except

- (a) 2 – butanol
- (b) isopropyl alcohol
- (c) 2 – methyl – 2 – propanol
- (d) tertiary butyl alcohol

56 All the following pairs are isomers except

- (a) propanol and isopropanol
- (b) Hexene and cyclohexane
- (c) Pentane and cyclopentane
- (d) Ethanol and dimethyl ether

57 Phenyl ethanoate is derived from a reaction of

- (a) acetic acid with ethyl alcohol
- (b) benzoic acid with ethanol
- (c) ethanoic acid with phenyl group
- (d) acetic acid with phenol

Fatma Farouk

58 The following ester $\text{CH}_3\text{OOC}\text{C}_6\text{H}_5$ can be obtained by a reaction of

- (a) phenol with methanol
- (b) phenol with acetic acid
- (c) benzoic acid with methanol
- (d) benzoic acid with ethanol

59 On heating a mixture of ethyl alcohol with sulphuric acid from the room temperature to 200°C , that will form a number of organic compounds which are respectively.

- (a) ethyl hydrogen sulphate / dimethyl ether / ethene
- (b) ethyl hydrogen sulphate / diethyl ether / ethene
- (c) ethyl hydrogen sulphate / ethene / dimethyl ether
- (d) dimethyl ether / ethyl hydrogen sulphate / ethene

60 Ammonolysis of methyl propanoate ester gives

- (a) $\text{CH}_3\text{CH}_2\text{CONH}_2 + \text{CH}_3\text{OH}$
- (b) $\text{CH}_3\text{CONH}_2 + \text{CH}_3\text{CH}_2\text{OH}$
- (c) $\text{CH}_3\text{CH}_2\text{COOH} + \text{CH}_3\text{OH}$
- (d) $\text{CH}_3\text{COOH} + \text{CH}_3\text{CH}_2\text{OH}$

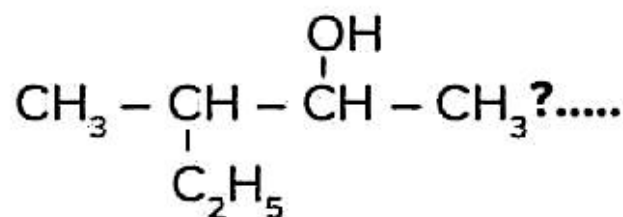
61 Both of phenol and methanol are similar in reacting with

- (a) zinc
- (b) sodium hydroxide
- (c) potassium
- (d) hydrogen chloride

62 Oxidation of formaldehyde gives while reduction of it gives

- (a) acetic acid / methanol
- (b) ethanol / methyl formate
- (c) formic acid / methanol
- (d) methanol / formic acid

63 What is the chemical name and the type of that alcohol



- (a) 3 - ethyl - 2 - butanol / secondary alcohol
- (b) 3 - ethyl - 3 - butanol / tertiary alcohol
- (c) 3 - methyl 4 - pentanol / primary alcohol
- (d) 3 - methyl - 2 - pentanol / secondary alcohol

64 Acidic hydrolysis of ethyl propanoate ester gives.....

- (a) $\text{CH}_3\text{CH}_2\text{COOH} + \text{CH}_3\text{CH}_2\text{OH}$
- (b) $\text{CH}_3\text{COOH} + \text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$
- (c) $\text{CH}_3\text{CH}_2\text{COOH} + \text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$
- (d) $\text{CH}_3\text{COOH} + \text{CH}_3\text{CH}_2\text{OH}$

65 On dehydration of 1 – propanol then adding water to the product, is formed

- (a) propyl alcohol
- (b) isopropyl alcohol
- (c) propanol
- (d) propanoic

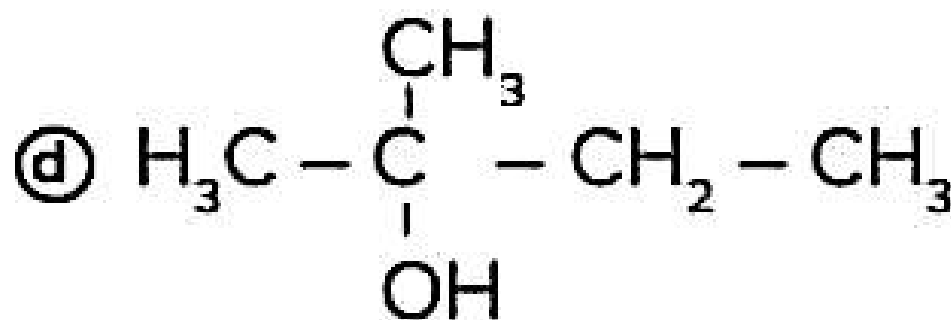
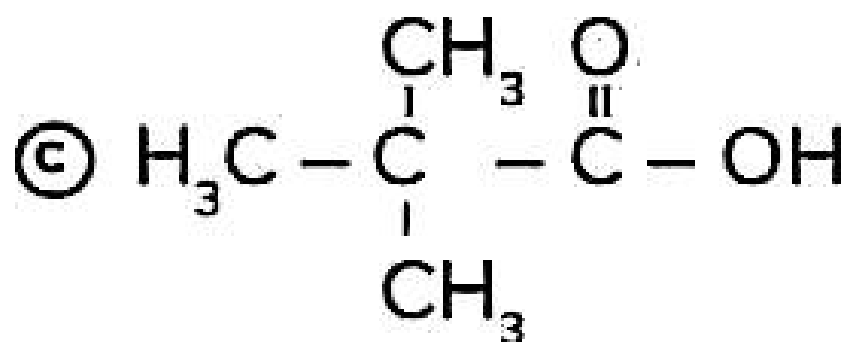
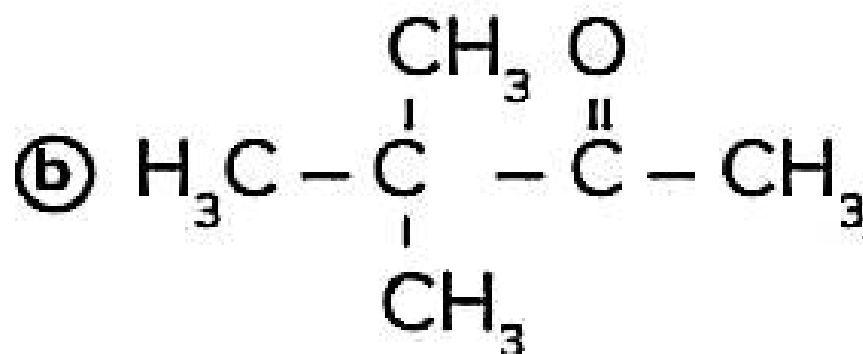
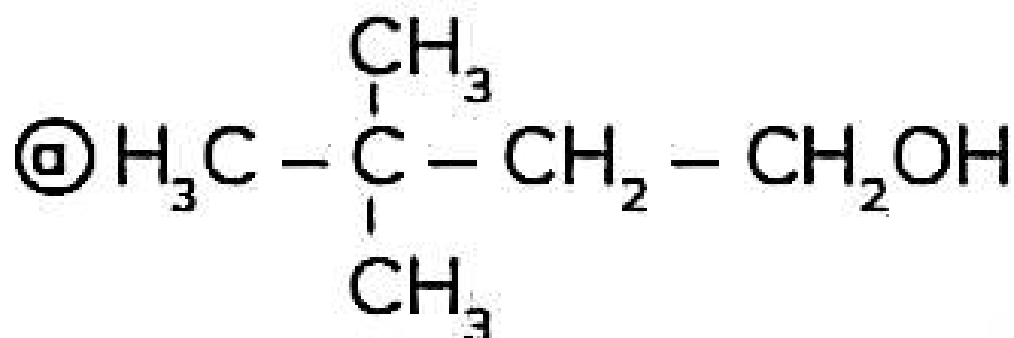
66 Potassium phenoxide is produced from reacting of phenol with

- (a) potassium or potassium hydroxide
- (b) potassium or potassium carbonate
- (c) potassium bicarbonate or potassium hydroxide
- (d) potassium bicarbonate or potassium carbonate

67

Which of the following compounds reacts easily with the indicator of acidified Cr^{6+} ion?

.....



Fairna Farouk

68 Carboxyl group can be converted into hydroxyl group by reaction.

- (a) reduction (b) oxidation
(c) halogenation (d) hydration

69 The molecular mass of each of methanol and oxygen gas equals 32 g/mole Although that, methanol is a liquid while oxygen is a gas because.....

- (a) All bonds in methanol are single while oxygen contains double bond
(b) Methanol contains pi bonds while all bonds in oxygen are sigma bonds
(c) Methanol contains methyl group which able to form hydrogen bonds
(d) Methanol contains hydroxyl group which able to form hydrogen bonds

Exercises For You

70 Phenol is considered as

- (a) strong acid and more acidic than ethyl alcohol
- (b) strong acid and less acidic than ethyl alcohol
- (c) weak acid and more acidic than ethyl alcohol
- (d) weak acid and less acidic than ethyl alcohol

71 Sorbitol can be obtained from each of glucose and fructose by

- (a) oxidation of carbonyl group in fructose and oxidation of formyl group in glucose
- (b) oxidation of carbonyl group in fructose and reduction of formyl group in glucose
- (c) reduction of carbonyl group in fructose and oxidation of formyl group in glucose
- (d) reduction of carbonyl group in fructose and reduction of formyl group in glucose

72 All the following are esters produced from aromatic acid except

- (a) $\text{CH}_3\text{COOC}_6\text{H}_5$
- (b) $\text{C}_6\text{H}_5\text{COOCH}_3$
- (c) $\text{C}_6\text{H}_5\text{COOCH}_2\text{CH}_3$
- (d) $\text{C}_3\text{H}_7\text{OOC}_6\text{H}_5$

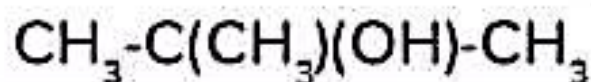
Model Answers

No.	Answer	Hint
1	c	(B) is alcohol which its formula is ROH $((C_n H_{2n+2} O), n+2n+2+1=12, n=3$ so B is iso propanol)
2	c	first member of ketones is acetone (CH_3COCH_3) & first member of cycloalkanes is cyclopropane (C_3H_6)
3	b	$A+C \rightarrow$ ester (food flavor), A is alcohol doesn't react with sodium so C is acid & B is phenol
4	d	example: $CH_3 - CH(OH) - CH_3 \xrightarrow{\text{dehydration}} CH_2 = CH - CH_3$ $CH_2 = CH - CH_3 \xrightarrow{\text{hydrogenation}} CH_3 - CH_2 - CH_3$ $CH_3 - CH_2 - CH_3 \xrightarrow{\text{halogenation}} CH_2Cl - CH_2 - CH_3$ $CH_2Cl - CH_2 - CH_3 \xrightarrow{\text{alkaline hydrolysis}} CH_2(OH) - CH_2 - CH_3$
5	d	with C forms $Fe(OH)_3$, with D forms $Fe(SCN)_3$
6	d	the ester may be CH_3COOCH_3 (will produce methanol & sodium ethanoate) or $HCOOC_2H_5$ (will produce ethanol & sodium formate)

Fahim Al-Ghoulk

7	d	$\text{C}_2\text{H}_5\text{ONa} \xrightarrow{\text{Hydrolysis}} \text{C}_2\text{H}_5\text{OH}$ $\xrightarrow{\text{dehydration}} \text{C}_2\text{H}_4 \xrightarrow{+\text{HBr}} \text{CH}_3 - \text{CH}_2\text{Br}$
8	a	$\text{CH}_3\text{COOC}_2\text{H}_5 \xrightarrow{\text{alkaline hydrolysis}}$ $\text{CH}_3\text{COONa} \xrightarrow{\text{dry distillation}} \text{CH}_4$
9	a	X is alcohol as it obeys formula ($\text{C}_n\text{H}_{2n+2}\text{O}$) but it forms acid ($\text{C}_n\text{H}_{2n}\text{O}_2$) so it's primary alcohol.
10	d	$\text{C}_2\text{H}_5\text{OH} \xrightarrow{\text{Oxidation}} \text{CH}_3\text{COOH}$ $\xrightarrow{\text{neutralization}} \text{CH}_3\text{COONa} \xrightarrow{\text{dry distillation}}$ $\text{CH}_4 \xrightarrow{\text{halogenation}} \text{CH}_3\text{Cl}$ $\xrightarrow{\text{alkaline hydrolysis}} \text{CH}_3\text{OH}$
11	c	$\text{CH}_3\text{CH}_2 \boxed{\text{OSO}_3\text{H} + \text{H}} \text{OCH}_2\text{CH}_3$ $\xrightarrow[140^\circ\text{C}]{\text{O}} \text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3 + \text{H}_2\text{SO}_4$
12	b	chromic acid (acidified potassium dichromate) is oxidizing agent and its color changes from orange into green by oxidation of methanol into formic acid (methanoic)
13	d	if benzene is branch, it's called phenyl

No.	Answer	Hint
14	d	ester is RCOOR\ , RCOO = 15+12+16+16=59 g/mol so the molar mass of remained R\ = 74-59=15 g/mol
15	c	hydrolysis of sucrose forms glucose & fructose but fermentation of glucose will form ethanol.
16	c	the gas is CO ₂
17	d	both carbinol are primary oxidized into carboxyl group
18	c	reduction of ketone produces secondary alcohol.
19	c	ethylene glycol is dihydric reacts with two moles of methanol
20	a	ketone, acid & tertiary alcohol can't be oxidized
21	c	largest [H ⁺] most acidic (aromatic acid)
22	a	alcohol & ether are isomers (have same general formula C _n H _{2n+2} O)
23	d	(a) violet, (b) forming ester , (c) effervesce & (d) no reaction
24	b	$\text{C}_2\text{H}_5\text{ONa} \xrightarrow{+\text{H}_2\text{O}} \text{C}_2\text{H}_5\text{OH}$ $\xrightarrow{\text{CH}_3\text{COOH}} \text{CH}_3\text{COOC}_2\text{H}_5$
25	d	$\text{CH}_3\text{-CBr}(\text{CH}_3)\text{-CH}_3 \xrightarrow{\text{alkaline hydrolysis}}$



26

b

methyl & ethyl alcohol form primary

27

d

first member of alkene is C_2H_4 , alkyne is C_2H_2 – ester HCOOCH_3

28

c

hydrolysis of methyl benzoate in acidic medium forms benzoic acid & methanol

29

c

thermometric substance which used in cold areas is ethanol

30

c

no. of basicity = no. of COOH group

31

d

2-hydroxyl benzaldehyde is oxidized into salicylic acid

32

a

alcohol (contains $-\text{OH}$) and acid (contains $-\text{COOH}$)

33

d

Marookh oil only contains phenolic group removes violet color with FeCl_3

34

d

the ester is HCOOC_2H_5

No.	Answer	Hint
35	d	$\text{CH}_3\text{COOH} \xrightarrow{\text{Neutralization}} \text{CH}_3\text{COONa}$ $\xrightarrow{\text{dry distillation}} \text{CH}_4 \xrightarrow{\text{halogenation}} \text{CH}_3\text{Cl}$ $\xrightarrow{\text{alkaline hydrolysis}} \text{CH}_3\text{OH} \xrightarrow{\text{oxidation}} \text{HCOOH}$
36	a	<p>general formula of alcohol is $\text{C}_n\text{H}_{2n+2}\text{O}$, $12n+2n+2+16=60$, $n=3$, the primary alcohol is 1-propanol & secondary alcohol is 2-propanol</p>
37	b	fermentation will form ethanol, its dehydration forms ethene.
38	c	the product is 2-propanol which is formed by catalytic hydration of propene
39	b	the compound (2-bromo propane).
40	d	COOH (acid), $-\text{OH}$ (phenol), $-\text{O}-$ (ether)
41	c	(a) & (d) is prepared from tertiary alcohol, (b) is prepared from primary alcohol
42	d	<p>alcohols (1-butanol / 2-butanol / 2-methyl-1-propanol / 2-methyl-2-propanol)</p> <p>ethers ($\text{CH}_3-\text{O}-\text{CH}_2-\text{CH}_2-\text{CH}_3$ / $\text{CH}_3-\text{CH}_2-\text{O}-\text{CH}_2-\text{CH}_3$ / $\text{CH}_3-\text{O}-\text{CH}(\text{CH}_3)-\text{CH}_3$)</p>

43	c	halides can be arranged ac-
44	d	the longest chain consists of five carbons (ethyl group is included)
45	d	tertiary alcohol can't be oxidized
46	c	catalytic hydration of ethene produces ethanol
47	b	during alkaline hydrolysis chloride is substituted by hydroxyl.
48	a	$\text{C}_6\text{H}_5\text{COOCH}_3 \xrightarrow{\text{NH}_3} \text{C}_6\text{H}_5\text{CONH}_2 + \text{CH}_3\text{OH}$
49	a	as no. of hydrogen bond increases the boiling point increases
50	c	the explosive substance is picric acid
51	c	benzene ring increases acidity, (-COH of phenol has no hydrogen atoms so can't be oxidized while -COH of cyclohexanol is bonded to hydrogen atom)
52	d	$\begin{array}{l} \text{C}_6\text{H}_5\text{COONa} \xrightarrow{\text{Dry distillation}} \text{C}_6\text{H}_6 \\ \xrightarrow{\text{Halogenation}} \text{C}_6\text{H}_5\text{Cl} \xrightarrow{\text{Alkaline hydrolysis}} \\ \text{C}_6\text{H}_5\text{OH} \xrightarrow{\text{Nitration}} \text{trinitrophenol} \end{array}$

No.	Answer	Hint
53	c	Dacron formed from terephthalic acid (dibasic) & ethylene glycol (dihydric alcohol).
54	d	alkaline hydrolysis produces sodium benzoate its dry distillation forms benzene
55	b	all of them have molecular formula $C_4H_{10}O$ except (b) has molecular formula C_3H_8O
56	c	molecular formula of Pentane is C_5H_{12} and cyclopentane C_5H_{10}
57	d	$CH_3COOH + C_6H_5OH$ $\xrightarrow{\text{dry HCl (esterification)}} CH_3COOC_6H_5 + H_2O$
58	c	$CH_3O/COC_6H_5 \xrightarrow{+H_2O/H^+}$ <p>(CH_3OH & C_6H_5COOH) (hydrolysis in acidic medium will form the acid and alcohol which form ester)</p>
59	b	ethyl hydrogen sulphate is formed at $80^\circ C$, diethyl ether is formed at $140^\circ C$ & ethene is formed at $180^\circ C$
60	a	$CH_3CH_2COOCH_3 \xrightarrow{+NH_3}$ $CH_3CH_2CONH_2 + CH_3OH$

61	c	methanol will not react with sodium hydroxide or zinc while phenol can.
62	c	$\text{CH}_3\text{OH} \xleftarrow{\text{reduction}} \text{HCHO} \xrightarrow{\text{oxidation}} \text{HCOOH}$
63	d	ethyl group is included in longest chain.
64	a	$\text{CH}_3\text{CH}_2\text{COOCH}_3 \xrightarrow{+\text{H}_2\text{O}/\text{H}^+} \text{CH}_3\text{CH}_2\text{COOH} + \text{CH}_3\text{OH}$
65	b	propene is asymmetric alkene obeys markwnikoff's rule
66	a	phenol has acidic character (can react with KOH)
67	a	reacts easily with the indicator of acidified Cr^{6+} (can be oxidized), primary alcohol can be oxidized while others not.
68	a	Carboxyl group (acid) is reduced into alcohol (-OH)
69	d	methanol can form hydrogen bond while oxygen can't.
70	c	presence of benzene ring increases acidic character.
71	d	reduction of carbonyl group (C=O) of fructose & reduction of formyl group (-CHO) of glucose.
72	a	All of them benzoate ester except (a) phenyl ethanoate.