

TOPIC: ORGANIC CHEMISTRY

PART I

- Which one of the following sets of compounds belongs to the same homologous series?
A. C_2H_4 , C_3H_4 and C_4H_8
B. C_2H_2 , C_3H_6 and C_4H_{10}
C. C_2H_6 , C_2H_2 and C_3H_8
D. C_2H_6 , C_5H_{12} and C_3H_8
- Which one of the following is the reaction which leads to the formation of soap?
A. Hydrogenation
B. Saponification
C. Polymerisation
D. Dehydration
- The process by which glucose can be converted into ethanol is called.
A. Fermentation
B. Hydrogenation
C. Dehydration
D. Vulcanisation
- Which one of the following substances can be used to distinguish ethane from ethene?
A. Bromine water
B. Lime water
C. Litmus paper
D. A glowing splint
- Which one of the following hydrocarbons is unsaturated?
A. C_4H_{10}
B. C_3H_8
C. C_2H_6
D. C_2H_4
- Which one of the following is the process by which the property of rubber is improved by treating with sulphur?
A. Polymerisation
B. Hydrogenation
C. Vulcanisation
D. Fermentation
- Which one of the following is the name given to the reaction between ethanol and hot concentrated acid to form ethene?
A. Polymerisation
B. Decomposition
C. Dehydration
D. Reduction
- Which one of the following gases is formed when turpentine, $C_{10}H_{16}$ is burnt in chlorine?
A. Methane
B. Hydrogen
C. hydrogen chloride
D. carbon dioxide
- Which one of the following pairs of hydrocarbons can be represented by the same general formula?
A. Propane and Propene
B. Propene and Ethane
C. Propane and butane
D. Propene and methane
- Which one of the following pairs of polymers are synthetic polymers?
A. Polythene and silk
B. Perspex and nylon
C. wool and cotton
D. wool and polythene
- Which one of the following processes is used to convert vegetable oils into fats?
A. Saponification
B. Cracking
C. Hydrogenation
D. Polymerisation

PART II

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|-----|---|----------------|--|--------------------------|
| 12. | Propene undergoes additional polymerization reaction. | Because | Propene is an unsaturated hydrocarbon. | <input type="checkbox"/> |
| 13. | Ethene changes the colour of bromine water from reddish-brown to colourless | Because | Ethene is a hydrocarbon | <input type="checkbox"/> |

14. Excessive use of detergents for laundry could cause environmental concerns **Because** All detergents are insoluble in water ☐
15. Ethene can form a polymer **Because** It is a hydrocarbon ☐
16. Methane burns in air to form carbon dioxide and water. **Because** It contains carbon and hydrogen atoms. ☐

PART III

17. Which one of the following sets of compounds belongs to the same homologous series?
1. C_2H_4 , C_3H_6 and C_4H_8 3. C_2H_6 , C_5H_{12} and C_3H_8 ☐
2. C_2H_6 , C_2H_2 and C_3H_8 4. C_2H_2 , C_3H_6 and C_4H_{10}
18. Which of the following is/are natural polymers?
1. Cellulose 2. Terylene 3. Protein 4. Nylon ☐
19. Which of the following statements is/are true about polythene?
1. it is biodegradable 3. it is a natural polymer ☐
2. it is a man-made polymer 4. it can be remoulded
20. The following is/are correct about polyethene
1. It is a thermo-softening plastic 3. It is a hydrocarbon ☐
2. It is a thermosetting plastic 4. It conducts heat and electricity
21. Which of the following substance(s) is/are commonly used to convert brown sugar to white sugar?
1. Sulphur dioxide 3. Animal charcoal ☐
2. Black charcoal 4. Sodium hypochlorite

SECTION B

1. (a) (i) State one word, which means "formation of soap". (01mark)

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(ii) Name two sources of vegetable oils that can be used to make soap. (01mark)

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(b) Briefly describe how soap can be prepared. (3½marks)

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d) State

(i) the advantages of using a detergent instead of soap for laundry work. (01mark)

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(ii) one disadvantage of using a detergent. (01mark)

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2. (a) Write the structure of formula of

(i) propene. (01mark)

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(ii) Propane. (01mark)

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(b) Name one reagent which can be used to distinguish between propene and propane. (½mark)

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(c). State what would be observed if propene was treated with the reagents you have named in (b). **above** (01mark)

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(d) Write equation for the polymerization of propene. (01mark)

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3. The general formulae of compounds Q and R are C_nH_{2n} and C_nH_{2n+2} respectively.

(a) Write the molecular formula and the name of Q and R for $n=2$

(i) Q, formula (½mark)

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.....

Q, Name (½mark)

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(ii). R; Formula

(1/2mark)

R; Name

(1/2mark)

(b) State the structural difference between Q and R.

(01mark)

(c)(i) Name a reagent which can be used to distinguish Q and R.

(1/2mark)

(ii) State what would be observed if the reagent you have named in (c)(i) was treated separately with Q and R.

(1 1/2marks)

(iii) Write equation for any reaction that would take place to illustrate your observation in (c)(ii).

(01mark)

4. Ethene is classified as an alkene and can be prepared in the laboratory by dehydration of ethanol.

(a) (i) State what is meant by the term alkene.

(02 marks)

(ii) Write the structural formula of ethene.

(01mark)

(iii) Name the reagent which is used as a dehydrating agent in the preparation of ethene.

(01 mark)

(b) Bromine was added to ethene. Write equation for the reaction that took place.

(01 mark)

(c) Under high temperature and pressure, ethene molecules can react with one another to form a big molecule Z.

(i) Name Z(½mark)

(ii) State one use of Z(½mark)

SECTION C

5. (a) Name the raw materials used in your locality to make an alcoholic drink. (02 marks)

(b) Briefly describe how ethanol can be obtained from the materials you have named in (a).

(05 marks)

(c) State how ethanol prepared in (b) can be concentrated and suggest one way of determining whether the ethanol is pure or not. (02 marks)

(d) Ethene can be formed from ethanol. Write equation and state the conditions for the reaction leading to the formation of ethene. (02 marks)

(e) name two uses of ethanol apart from the preparation of ethene. (02 marks)

6. (a) State the difference between the following pairs of terms:

(i) Synthetic polymer and natural polymer. (02 marks)

(ii) Thermosetting polymer and thermosoftening (or thermoplastic) polymer. (03 marks)

(b). (i) State the condition under which sulphuric acid can react with ethanol to produce ethene. (01 mark)

(ii) Write an equation leading to the formation of ethene. (01½ marks)

(c). When reacted together, ethene molecules can form a polymer.

(i) Name the polymer. (01mark)

(ii) Write an equation leading to the formation of the polymer. (01mark)

(iii) State one use of the polymer. (01 mark)

(d). Name the

(i) synthetic polymer other than the one you have named in (c). (01 mark)

(ii) natural polymer other than rubber. (01 mark)

(e). State the

(i) use of each of the polymers you have named in (d). (02 marks)

(ii) disadvantage of the polymer formed in (c)(ii). (½ mark)

END!!!

“Don’t ask what the world needs. Ask what makes you come alive, and go do it.”