SET A

E1006 –Ch

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Summative Assessment – Term I 2025-26

CHEMISTRY

Class : X

Score : 40
Time : 1 ½Hours

INSTRUCTIONS :

- *First fifteen minutes are cool off time. Read the questions carefully during this time.*
- *Write the answers according to the instructions.*
- *Consider the score while writing the answers.*
- *Answer only one question for questions having choice.*

[Answer all the questions from 1 to 4 . Each question carries 1 score.] **Score (4 x 1 =4)**

1. Which is the functional group present in acetone? (1)

   (hydroxyl, alkoxy, keto, aldehyde)

2. Match the following.

Category	Function
(a) Analgesics	(i) Reduce body temperature
(b) Antipyretics	(ii) prevent the growth of infectious micro organisms
(c) Antibiotics	(iii) Relieve pain

Choose the correct answer from the options given below. (1)

	(a)	(b)	(c)
A	(ii)	(i)	(iii)
B.	(i)	(ii)	(iii)
C	(iii)	(i)	(ii)
D	(ii)	(iii)	(i)

3. An alkane X with four carbon atoms undergo thermal cracking to get the products Y and Z (symbols are not real). Choose the correct option from the following. (1)

A. X - C_4H_8, Y- CH_4., Z- $CH_2=CH_2$

B. X - C_4H_{10}, Y- CH_4, Z- $CH_2=CH_2$

C . X - C_4H_6, Y- $CH_2=CH_2$, Z- $CH_2=CH_2$

D. X - C_4H_{10}, Y- CH_3-CH_3, Z- $CH_2=CH_2$

CH CH CH CH

4. **Statement 1** : L shell contains a maximum of 8 electrons. (1)

Statement 2 : L shell has five orbitals.

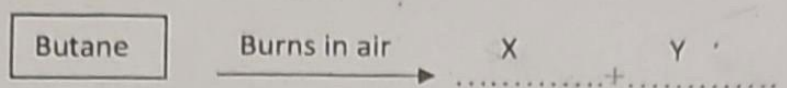
Which of the following options is true regarding these statements?

A. Statements 1 and 2 are correct.
B. Statement 1 is correct, but 2 is not correct.
C. Statement 1 is not correct, but 2 is correct.
D. Statements 1 and 2 are not correct.

Two questions from 5 to 11 have choice. Each question carries 2 scores. **(7 x 2 =14)**

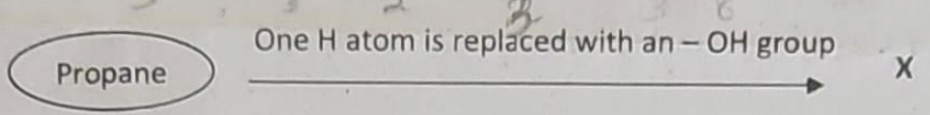
5. An aromatic hydrocarbon has 6 carbon atoms and 6 hydrogen atoms in its molecule.
   a) Draw the structure of compound obtained when a hydrogen atom of this compound is replaced with an -OH group (1)
   b) Write the name of this compound. (1)

6. a) What is meant by combustion? (1)
   b)



Identify X and Y. (1)

7. **(A)** Analyse the following.



   a) Write the structural formula of X. (1)
   b) What is its IUPAC name? (1)

OR

(B) One molecule of an aliphatic organic compound has 6 carbon atoms. It is identified as a saturated carboxylic acid.
   a) Write the structural formula of this compound. (1)
   b) Write the IUPAC name of a compound in this family with 5 carbon atoms. (1)

8. Write the structural formulae of the given compounds.
   a) 2,2- Dibromopropane (1)
   b) Propyne (1)

9. One ethyne molecule is allowed to react with two chlorine molecules.
   a) Write the structural formula of the product obtained. (1)
   b) Write the IUPAC name of the product obtained. (1)

10. A saturated aliphatic hydrocarbon molecule contains a total of 7 carbon atoms. There is a methyl group as branch at second carbon atom of its main chain.
    a) Draw the structure of this compound. (1)
    b) Write the IUPAC name of this compound. (1)

11. **(A)** A polymer is used to coat the inner side of cookwares.
    a) Write the common name and IUPAC name of the polymer. (2)

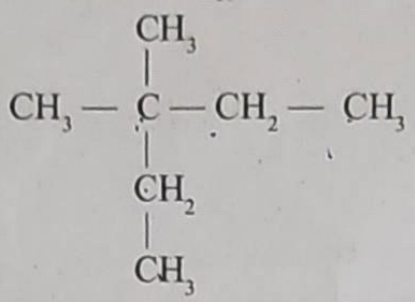
OR

(B) Nylon 66 is a very useful polymer.

    a) What are the monomers of nylon 66? (1)
    b) Write any one use of nylon 66? (1)

Two questions from 12 to 17 have choice. Each question carries 3 scores. **(6 x 3 =18)**

12. Analyse the given structure.



    a) Write the number of carbon atoms in the longest chain. (1)
    b) What is the position number of carbon atom to which methyl groups are attached? (1)
    c) What is the IUPAC name of this compound? (1)

13. **(A)**
Compound (1) CH_3— CHO and Compound (2)CH_3 — CH_2 — CHO are members of a homologous series.
    a) Write the name of family to which these compounds belong. (1)
    b) Write the IUPAC name of these compounds. (1)
    c) Draw the structure of a compound having the same molecular formula of compound (2), but having another functional group. (1)

OR

(B) Pentan-2-one and pentan-3-one are a pair of isomers.

    a) Write the structural formulae of these compounds. (1)
    b) To which family of organic compounds do they belong? (1)
    c) Write the structural formula of a compound which has the same molecular formula of these compounds but belong to another family. (1)

14. a) Starting from carbon monoxide how will you prepare the following compounds?
   (i) Methanol (1)
   (ii) Ethanoic acid (1)

   b) Write the chemical equation of reaction for the formation of compound (ii) (1)

15. When ethyl alcohol is treated with a carboxylic acid, in presence of concentrated H_2SO_4, a compound having the smell of pineapple is obtained.
   a) What is the general name of the product obtained? (1)
   b) Write the chemical equation of formation of this product. (1)
   c) Write the IUPAC name of the product. (1)

16. **(A)** Two statements regarding a shell are given below
   - The last electron of an atom fills into the shell with principal quantum number n = 3.
   - This shell contains a total of seven electrons.

   a) Write the electron configuration of this atom. (1)
   b) Write the names of subshells present in the shell with n = 2. (1)
   c) How many orientations will be there for subshell with $l = 1$? (1)

OR

(B) The last electron in an atom has the following quantum numbers associated with it, n = 2, $l = 1$

   a) Represent the given subshell. (1)
   b) Find the number of orientations possible for this given subshell. (1)
   c) What is the total number of orbitals in the shell with n=2. (1)

17. PVC is a widely used polymer.
   a) Starting from ethyne how will you prepare PVC? (2)
   b) Write the names of reactions involved in each step of preparation. (1)

Question 18 has choice. It carries 4 scores **(1 x 4 =4)**

18. **(A)** Molecular formula of a compound is $C_4H_{10}O$
   a) Which are the families of organic compounds having this molecular formula? (1)
   b) Write the structural formulae of a pair of functional isomers having this molecular formula. (1)
   c) Write the structural formulae of a pair of position isomers having this molecular formula. (1)
   d) Write the structural formulae of a pair of metamers having this molecular formula. (1)

OR

(B) C_4H_6 is the molecular formula of an open chain hydrocarbon.

   a) Write the general formula of family to which this hydrocarbon belongs. (1)
   b) Write the possible structural formulae of this hydrocarbon. (1)
   c) Identify the type of isomerism exhibited by these compounds. (1)
   d) 4 hydrogen atoms are added to a molecule of this compound. Write the structural formulae of a pair of chain isomers of the product. (1)