

SAMAGRA SHIKSHA KERALA
SUMMATIVE ASSESSMENT - I - 2026-27
CHEMISTRY

Class : X

Score : 40

Time : 1 ½ Hours

INSTRUCTIONS :

- First 15 minutes are cool off time. Read the questions carefully and plan the answers during this time.
- Write the answers according to the instructions.
- Consider the score while writing the answers.
- Answer only one question for questions having choices A and B.

Answer all the questions from 1 to 4 . Each question carries 1 score.

(4 x 1 =4)

1. The first member of alkyne series is (1)

A. CH₄
B. CH₂=CH₂

C. CH≡CH
D. CH₃-CH₃
2. Match column A with column B and choose the correct answer from the options given below (1)

(A) Compound	(B) Functional group
(a) Ethanol	(i) Carboxylic
(b) Pentanal	(ii) Hydroxyl
(c) Ethoxy propane	(iii) Alkoxy
	(iv) Aldehyde

- (a)
(b)
(c)

A. (ii) (i) (iii)
B. (iii) (iv) (i)
C. (iv) (i) (ii)
D. (ii) (iv) (iii)
3. Which of the following statements are correct? (1)

- i. The 'l' value of 3s subshell is 1.
 - ii. 3s subshell has only one 'm' value.
 - iii. 3s subshell has three 'm' values.
 - iv. The 'l' value of 3s subshell is 0.

- a) i & ii are correct.
 - b) i & iii are correct.
 - c) ii & iv are correct.
 - d) i & iv are correct.

4. **Assertion (A)** : Alkenes can undergo addition reaction.

Reason (R) : Alkenes are saturated hydrocarbons.

Which of the following is correct ?

(1)

A) Both A and R are correct, R is the correct explanation of A.

B) Both A and R are correct, R is not the correct explanation of A.

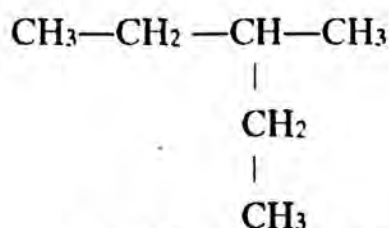
C) A is correct but R is not correct.

D) A and R are not correct.

Two questions from 5 to 11 have choice. Each question carries 2 scores.

(7x 2 =14)

5. Analyse the given structure.



a) Write the number of carbon atoms in the longest carbon chain.

(1)

b) Write the IUPAC name of this compound.

(1)

6. (A) Two quantum numbers associated with a subshell are given.

$$n = 3, l = 2$$

a) Represent the given subshell.

(1)

b) Find the number of 'm' values for this subshell.

(1)

OR

(B) Select the appropriate from the bracket for the given statements.

[Heisenberg's Uncertainty Principle, Quantum mechanical model, Bohr model of atom]

a) It is impossible to determine simultaneously the exact position and exact velocity of fast moving electron.

(1)

b) There are regions around the nucleus where there is maximum probability of finding an electron.

(1)

7. The combustion of hydrocarbons is a very important reaction.

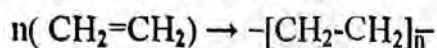
a) What are the products formed as the result of combustion of hydrocarbons?

(1)

b) Write the equation of combustion of methane.

(1)

8. (A) A chemical reaction is given.



- a) Write the name of this reaction. (1)
b) Write the name of the product formed. (1)

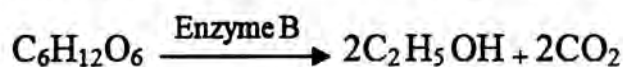
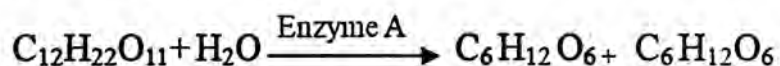
OR

- (B) Write the monomers of the following.

- a) Bakelite (1)
b) Nylon 66 (1)
9. Ethanoic acid is a very important organic compound.
a) How is ethanoic acid industrially produced? (1)
b) Write one use of ethanoic acid in day to day life. (1)
10. One hydrogen atom on the second carbon atom of butane is replaced with a bromo group.
a) Write the structural formula of the compound obtained. (1)
b) Write the IUPAC name of this product. (1)
11. When methane reacts with chlorine in the presence of sunlight it undergoes substitution reaction.
a) Which is the product formed during the first step? (1)
b) Write the chemical equation of the reaction. (1)

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

12. Analyse the equation given.



- a) Write the names of enzymes A and B. (1)
b) Which alcohol is produced by this process? (1)
c) What is power alcohol? (1)
13. (A) Structural formulae of two organic compounds are given.
i) $\text{CH}_3-\text{CH}_2-\text{COOH}$
ii) $\text{CH}_3-\text{CH}_2-\text{CH}_2-\text{COOH}$

a) Write the name of functional group in these compounds. (1)

b) What is the common name of compounds containing this functional group? (1)

c) $\text{CH}_3\text{-CH}_2\text{-COO-CH}_3$ is a functional isomer of compound (ii). Do you agree with this statement? Justify. (1)

OR

(B) C_6H_6 is the molecular formula of an aromatic compound.

a) Write the name of this compound. (1)

b) Draw the structure of this compound. (1)

c) Draw the structural formula of the compound obtained when a hydrogen atom of this compound is replaced by an -OH group. (1)

14. Write the IUPAC names of the following compounds. (3)

i) $\text{CH}_3\text{-CH=CH-CH}_3$

ii) $\text{CH}_3\text{-CH}_2\text{-COO-CH}_2\text{-CH}_3$

iii)
$$\begin{array}{ccccccc} & & & \text{Cl} & & & \\ & & & | & & & \\ \text{CH}_3 & - & \text{CH}_2 & - & \text{CH} & - & \text{C} & - & \text{CH}_3 \\ & & & | & & & | & & \\ & & & \text{Cl} & & & \text{Cl} & & \end{array}$$

15. C_3H_6 , X, C_5H_{10} are members of a given series of organic compounds.

a) Identify X. (1)

b) Write the name of the family of organic compounds to which they belong. (1)

c) What is the product formed if X combines with an H_2 molecule? (1)

16. (A) Some chemical reactions of organic compounds are given.

i) $\text{C}_2\text{H}_2 + \text{H}_2 \longrightarrow \text{C}_2\text{H}_4$

ii) $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{-CH}_3 \longrightarrow \text{CH}_2=\text{CH}_2 + \text{CH}_3\text{-CH}_2\text{-CH}_3$

a) Identify the alkyne present in the equation (i). (1)

b) Give the names of the reactions (i) and (ii). (2)

OR

(B) To which category does each of the following reactions belong?

Select from the bracket.

(Substitution reaction, Addition reaction, Polymerisation, Thermal cracking)

a) Ethane $\rightarrow$ Chloroethane (1)

b) Propyne $\rightarrow$ Propene (1)

c) Hexane $\rightarrow$ Ethane + Butene (1)

17. An ester is a compound having pleasant smell of fruits and flowers
- What are the reactants in the esterification reaction? (1)
 - Which are the reactants required to obtain the ester ethyl butanoate? (1)
 - What is the smell of ethyl butanoate? (1)

Question 18 has choice. This carries 4 score. (1 x 4 = 4)

18. (A) An organic compound with a methoxy group as functional group has four carbon atoms in it.
- Write the structural formula of this compound. (1)
 - Write its IUPAC name. (1)
 - Write the structural formula and IUPAC name of one metamer of this compound. (2)

OR

(B) Structures of some organic compounds are given below.

- | | |
|--|---|
| 1. $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{-OH}$ | 6. $\text{CH}_3\text{-CH-CH}_3$

CH_3 |
| 2. $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-CHO}$ | |
| 3. $\text{CH}_3\text{-CH}_2\text{-O-CH}_2\text{-CH}_3$ | 7. $\text{CH}_3\text{-CO-CH}_2\text{-CH}_3$ |
| 4. $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-CH}_3$ | 8. $\text{CH}_2\text{=CH-CH}_2\text{-CH}_3$ |
| 5. $\text{CH}_3\text{-CH=CH-CH}_3$ | |

- Identify a ketone from these compounds. (1)
- Select a functional isomer of this ketone. (1)
- Select a pair of chain isomers from these compounds. (1)
- What type of isomerism is shown by compound 5 and compound 8? (1)