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SSC-I NATIONAL BOOK FOUNDATION FBISE

CHEMISTRY TEST - CHAPTER 14: HYDROCARBONS

Name:		Roll No.		Section:

Total Time: 2:30 Hour
Time Allowed: 150 Minutes

Total Marks: 150

PAPER OBJECTIVE
SECTION-A (MARKS 150)

NOTE: Section-A is compulsory. All parts of this section are to be answered on these pages and handed over to the center superintendent. Deleting / overwriting is not allowed. Do not use lead pencil.

Q.1 Fill the relevant bubble for each part. All parts carry one mark.

Questions	A	B	C	D	A B C D
1. Organic compounds containing only carbon and hydrogen are called:	Hydrocarbons	Esters	Carbohydrates	Alcohols	●○○○
2. Hydrocarbons are classified according to the type of _____ between carbon atoms.	Density	Mass	Colour	Bond	○○○●
3. Alkanes are _____ hydrocarbons.	Unsaturated	Cyclic only	Saturated	Aromatic	○○●○
4. The general formula of alkanes is:	C_nH_{2n}	C_nH_{2n-2}	C_nH_{2n+2}	C_nH_n	○○●○
5. In alkanes each carbon atom forms _____ bonds.	Six	Three	Two	Four	○○○●
6. In alkanes each hydrogen atom forms _____ bond(s).	One	Four	Three	Two	●○○○
7. The simplest alkane is:	Ethane	Propane	Methane	Butane	○○●○
8. The formula of methane is:	C_2H_6	CH_3OH	C_3H_8	CH_4	○○○●
9. Methane is the main component of:	Diesel	Coal	Petrol	Natural gas	○○○●
10. The next member of the alkane series after methane is:	Ethene	Propane	Butane	Ethane	○○○●
11. The formula of ethane is:	C_2H_6	C_2H_2	C_2H_4	CH_4	●○○○
12. The formula of propane is:	C_2H_6	C_3H_8	C_3H_6	C_3H_4	○●○○

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Questions	A	B	C	D	A B C D
13. The formula of butane is:	C_4H_8	C_4H_{10}	C_3H_8	C_4H_6	○●○○
14. The formula of pentane is:	C_5H_{12}	C_5H_8	C_4H_{10}	C_5H_{10}	●○○○
15. The formula of hexane is:	C_6H_{14}	C_6H_{10}	C_6H_{12}	C_5H_{12}	●○○○
16. The formula of heptane is:	C_7H_{16}	C_7H_{12}	C_7H_{14}	C_6H_{14}	●○○○
17. The formula of octane is:	C_8H_{18}	C_8H_{16}	C_8H_{14}	C_7H_{16}	●○○○
18. The formula of nonane is:	C_9H_{18}	C_8H_{18}	C_9H_{16}	C_9H_{20}	○○○●
19. The formula of decane is:	$C_{10}H_{18}$	$C_{10}H_{22}$	$C_{10}H_{20}$	C_9H_{20}	○●○○
20. The alkane with 5 carbon atoms is:	Butane	Hexane	Propane	Pentane	○○○●
21. The alkane with 6 carbon atoms is:	Pentane	Hexane	Heptane	Butane	○●○○
22. The alkane with 8 carbon atoms is:	Heptane	Octane	Nonane	Hexane	○●○○
23. The alkane with 10 carbon atoms is:	Octane	Heptane	Decane	Nonane	○○●○
24. The number of hydrogen atoms in an alkane with 7 carbons is:	14	18	16	15	○○●○
25. The number of hydrogen atoms in an alkane with 12 carbons is:	24	28	25	26	○○○●
26. The molecular formula of an alkane with 20 carbons is:	$C_{20}H_{44}$	$C_{20}H_{40}$	$C_{20}H_{38}$	$C_{20}H_{42}$	○○○●
27. The number of C–H bonds in methane is:	6	4	2	3	○●○○
28. The number of C–H bonds in ethane is:	4	6	8	2	○●○○
29. The number of C–C bonds in ethane is:	2	3	1	0	○○●○
30. The number of C–C bonds in propane is:	1	3	2	8	○○●○

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Questions	A	B	C	D	A B C D
31. The number of C–C bonds in butane is:	4	3	2	10	○●○○
32. Addition of hydrogen across a carbon-carbon multiple bond is called:	Hydrogenation	Halogenation	Combustion	Cracking	●○○○
33. Hydrogenation takes place in the presence of finely divided:	Zinc	Copper	Iron	Nickel	○○○●
34. Hydrogenation with nickel is carried out at:	−100 °C	Room temperature	1000 °C	200–300 °C and high pressure	○○○●
35. Hydrogenation can also be done using Pt or Pd at:	450–750 °C	Room temperature	−50 °C	200–300 °C	○●○○
36. Alkynes add _____ molecules of hydrogen.	Four	Three	One	Two	○○○●
37. Alkynes add two molecules of hydrogen because of the _____ bond.	Ionic	Single	Triple	Double	○○●○
38. Alkenes add _____ molecule(s) of hydrogen.	Four	Two	One	Three	○○●○
39. $CH_2{=}CH_2 + H_2 \rightarrow$	$CH{\equiv}CH$	$CH_3{-}CH_3$	CH_4	C_2H_2	○●○○
40. $CH{\equiv}CH + H_2 \rightarrow$	CH_4	C_2H_6	$CH_3{-}CH_3$	$CH_2{=}CH_2$	○○○●
41. $CH{\equiv}CH + 2H_2 \rightarrow$	CH_4	C_2H_2	$CH_2{=}CH_2$	$CH_3{-}CH_3$	○○○●
42. The hydrogenation product of ethene is:	Ethyne	Methane	Ethane	Propane	○○●○
43. The hydrogenation product of ethyne (two H_2 molecules) is:	Propane	Methane	Ethene	Ethane	○○○●
44. The hydrogenation product of propene is:	Propyne	Propane	Ethane	Butane	○●○○
45. The reduction of an alkyl halide gives an:	Alkene	Alkyne	Alkane	Alcohol	○○●○
46. An alkyl halide is treated with _____ in presence of aqueous acid to give an alkane.	Cu	Fe	Zn	Ag	○○●○
47. Usually the aqueous acid used is HCl or:	HNO_3	H_2CO_3	CH_3COOH	H_3PO_4	○○●○

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Questions	A	B	C	D	A B C D
48. Zinc reacting with aqueous acid liberates:	Nascent hydrogen	Oxygen	Chlorine	Nitrogen	●○○○
49. Atomic hydrogen produced in the reaction is called:	Free oxygen	Molecular hydrogen	Heavy hydrogen	Nascent hydrogen	○○○●
50. Addition of nascent hydrogen is called:	Halogenation	Combustion	Reduction	Oxidation	○○●○
51. $CH_3Cl + 2[H] \rightarrow$	$CH_4 + HCl$	CH_3OH	C_2H_6	$CH_2=CH_2$	●○○○
52. The reduction of chloromethane gives:	Methanol	Methane	Ethene	Ethane	○●○○
53. The reduction of bromoethane gives:	Propane	Methane	Ethane	Ethene	○○●○
54. Breaking of large hydrocarbon molecules into smaller ones by heating is called:	Halogenation	Hydrogenation	Combustion	Cracking	○○○●
55. Thermal cracking occurs at about:	10 °C	25 °C	100 °C	450–750 °C and high pressure	○○○●
56. Thermal cracking produces a mixture of alkanes and:	Alcohols	Alkynes	Alkenes	Acids	○○●○
57. Cracking of decane gives octane and:	Ethyne	Ethane	Methane	Ethene	○○○●
58. $C_{10}H_{22} \rightarrow C_8H_{18} +$ _____	C_2H_6	C_2H_4	C_2H_2	CH_4	○●○○
59. Cracking is used in petroleum refineries to obtain:	Plastic bags	Smaller useful hydrocarbons	Metals	Water	○●○○
60. Alkane molecules are essentially:	Metallic	Ionic	Non-polar	Polar	○○●○
61. Alkanes are _____ dense than water.	Equally	Twice	Less	More	○○●○
62. Alkanes _____ in water.	Dissolve completely	Ionize	React violently	Do not dissolve	○○○●
63. Alkanes do not react with most _____ compounds.	Gaseous	Ionic	Covalent	Organic	○●○○
64. The lack of reactivity makes alkanes useful as:	Acids	Solvents	Bases	Metals	○●○○

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Questions	A	B	C	D	A B C D
65. Hexane is used to extract vegetable oils from:	Metal ores	Rocks	Corn, soybeans and cotton seeds	Water	○○●○
66. Alkanes containing up to four carbon atoms are:	Colourless, odourless gases	Solids	Plasmas	Liquids	●○○○
67. Alkanes with five to seventeen carbon atoms are:	Gases	Colourless, odourless liquids	Plasmas	Solids	○●○○
68. Higher alkanes are:	Gases	Liquids	Colourless, odourless solids	Plasmas	○○●○
69. At room temperature methane is a:	Liquid	Solid	Gas	Plasma	○○●○
70. At room temperature butane is a:	Liquid	Solid	Plasma	Gas	○○○●
71. At room temperature pentane is a:	Liquid	Solid	Plasma	Gas	●○○○
72. At room temperature octane is a:	Gas	Plasma	Liquid	Solid	○○●○
73. At room temperature paraffin wax (higher alkane) is a:	Plasma	Solid	Liquid	Gas	○●○○
74. Alkanes react with halogens in:	Cold water	Darkness	Acid	Sunlight	○○○●
75. A reaction that takes place in the presence of sunlight is a _____ reaction.	Photochemical	Electrolytic	Nuclear	Thermal	●○○○
76. The reaction of an alkane with a halogen is a _____ reaction.	Substitution	Addition	Redox only	Elimination	●○○○
77. In halogenation, a halogen atom _____ a hydrogen atom of the alkane.	Substitutes	Adds to	Doubles	Removes	●○○○
78. $CH_4 + Cl_2$ (diffused sunlight) →	CH_3Cl + HCl	CH_2Cl_2 only	CCl_4 only	C + HCl	●○○○
79. The reaction of methane with chlorine in diffused sunlight gives chloromethane and:	Cl_2	HCl	CO	H_2	○●○○
80. In direct sunlight, methane and chlorine react _____.	Explosively	Not at all	Gently	Slowly	●○○○
81. $CH_4 + 2Cl_2$ (direct sunlight) →	C + 4HCl	$CH_2Cl_2 + H_2$	$CCl_4 + 2H_2$	CO_2 + HCl	●○○○

Questions	A	B	C	D	A B C D
82. In the explosive reaction of methane with chlorine, _____ is formed.	Nitrogen	Oxygen	Silicon	Carbon	○○○●
83. Chloromethane has the formula:	$CHCl_3$	CH_2Cl_2	CH_3Cl	CCl_4	○○●○
84. The formula of dichloromethane is:	CH_2Cl_2	CH_3Cl	$CHCl_3$	CCl_4	●○○○
85. The formula of trichloromethane (chloroform) is:	CH_2Cl_2	CH_3Cl	CCl_4	$CHCl_3$	○○○●
86. The formula of tetrachloromethane is:	$CHCl_3$	CH_3Cl	CCl_4	CH_2Cl_2	○○●○
87. A reaction with oxygen that releases heat and flame is:	Halogenation	Combustion	Cracking	Hydrogenation	○●○○
88. Complete combustion of an alkane produces carbon dioxide, water and:	Nitrogen	Heat	Oxygen	Hydrogen	○●○○
89. $CH_4 + 2O_2 \rightarrow$	$CO + 2H_2O$	$CO_2 + 2H_2$	$CO_2 + 2H_2O$ + heat	$C + 2H_2O$	○○●○
90. Combustion of natural gas gives:	N_2 and O_2	CO and H_2	C and H_2	CO_2 and H_2O	○○○●
91. Lighter alkanes are used as fuel because their combustion can be:	Explosive	Impossible	Slow	Controlled	○○○●
92. Lighter alkanes are used as fuel because they produce a large amount of heat per:	Litre of water	Metre	Gram	Kilometre	○○●○
93. Lighter alkanes are used as fuel because they are cheap and:	Heavy	Readily available	Dangerous	Rare	○●○○
94. Incomplete combustion occurs with a _____ supply of oxygen.	No	Excess	Large	Limited	○○○●
95. Incomplete combustion of methane gives CO, C and:	H_2O	O_2	N_2	H_2	●○○○
96. $3CH_4 + 4O_2 \rightarrow$	$2CO + C + 6H_2O$	$CO + 6H_2$	$3CO_2 + 6H_2O$	$3C + 4CO_2$	●○○○
97. The toxic gas formed in incomplete combustion is:	Carbon dioxide	Oxygen	Carbon monoxide	Nitrogen	○○●○
98. The black solid formed in incomplete combustion is:	Carbon (soot)	Sulphur	Iron	Lead	●○○○

Questions	A	B	C	D	A B C D
99. A blue flame is usually produced in _____ combustion.	Complete	Incomplete	No	Slow	●○○○
100. A yellow sooty flame is usually produced in _____ combustion.	Fast	Complete	No	Incomplete	○○○●
101. Which molecule contains a carbon-carbon single bond?	Ethane	Methanol	Ethene	Ethyne	●○○○
102. Which compound is reduced when chloromethane is treated with Zn and acid?	Ethane	Ethene	Chloromethane	Ethyne	○○●○
103. By hydrogenation we mean the addition of:	Hydrogen	Water	Hydrogen halide	Halogen	●○○○
104. Combustion of methane gives carbon dioxide, water and:	Heat	Hydrogen	Cold	Nitrogen	●○○○
105. Reduction of chloromethane gives:	Hydrogen	Ethane	Methane	Chlorine	○○●○
106. An example of a saturated hydrocarbon is:	Benzene	Ethene	Ethyne	Propane	○○○●
107. Another example: An example of a saturated hydrocarbon is:	Propyne	Ethene	Butane	Ethyne	○○●○
108. Yet another: An example of a saturated hydrocarbon is:	Propene	Benzene	Butyne	Ethane	○○○●
109. Which is NOT a saturated hydrocarbon?	Propane	Ethane	Ethene	Methane	○○●○
110. The alkane with five carbon atoms (pentane) has _____ hydrogen atoms.	8	12	10	14	○●○○
111. Electron dot and cross structure of methane shows _____ shared pairs.	Two	Four	Three	Six	○●○○
112. The bond angle in methane is about:	109.5°	180°	90°	120°	●○○○
113. The shape of the methane molecule is:	Linear	Tetrahedral	Pyramidal	Planar	○●○○
114. Alkanes are also known as:	Aromatics	Olefins	Paraffins	Acetylenes	○○●○
115. Alkenes are also known as:	Olefins	Aromatics	Acetylenes	Paraffins	●○○○

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Questions	A	B	C	D	A B C D
116. Alkynes are also known as:	Acetylenes	Aromatics	Paraffins	Olefins	●○○○
117. LPG mainly consists of propane and:	Ethene	Ethyne	Methane	Butane	○○○●
118. CNG mainly consists of:	Propane	Pentane	Methane	Butane	○○●○
119. Natural gas, LPG and petrol are mainly mixtures of:	Hydrocarbons	Alcohols	Acids	Salts	●○○○
120. Methane is also called:	Water gas	Producer gas	Marsh gas	Laughing gas	○○●○
121. Methane is a greenhouse gas as well as a:	Salt	Acid	Metal	Fuel	○○○●
122. Alkanes are generally _____ reactive than alkenes.	More	Equally	Much more	Less	○○○●
123. Why are alkanes less reactive than alkenes? Because they have only:	Double bonds	Ionic bonds	Triple bonds	Single bonds	○○○●
124. The process of adding hydrogen to unsaturated oils is used in making:	Ghee (margarine)	Soap only	Plastic	Glass	●○○○
125. A catalyst commonly used for hydrogenation of oils is:	Gold	Nickel	Mercury	Silver	○●○○
126. A substitution reaction replaces a hydrogen atom with:	An electron	A carbon atom	A neutron	Another atom or group	○○○●
127. The reaction between an alkane and chlorine needs:	Light	A catalyst only	Darkness	Cold	●○○○
128. Which of these fuels releases the largest heat per gram?	Hydrocarbons	Salt	Sand	Water	●○○○
129. The unit before Hydrocarbons in the book is:	Stoichiometry	Biochemistry	Organic Chemistry	Matter	○○●○
130. The unit after Hydrocarbons in the book is:	Energetics	Biochemistry	Organic Chemistry	Matter	○●○○
131. The number of carbon atoms in decane is:	12	10	9	8	○●○○
132. The prefix 'meth' means _____ carbon atom(s).	2	1	3	4	○●○○

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Questions	A	B	C	D	A B C D
133. The prefix 'eth' means _____ carbon atoms.	3	1	2	4	○○●○
134. The prefix 'prop' means _____ carbon atoms.	4	3	5	2	○●○○
135. The prefix 'but' means _____ carbon atoms.	4	2	3	5	●○○○
136. The prefix 'pent' means _____ carbon atoms.	3	5	6	4	○●○○
137. The prefix 'hex' means _____ carbon atoms.	4	6	7	5	○●○○
138. The suffix '-ane' shows the compound is an:	Alcohol	Alkane	Alkyne	Alkene	○●○○
139. The suffix '-ene' shows the compound is an:	Alkane	Alkene	Alcohol	Alkyne	○●○○
140. The suffix '-yne' shows the compound is an:	Alkene	Alkyne	Alcohol	Alkane	○●○○
141. Which gas is the main product of complete combustion of alkanes along with water?	Oxygen	Hydrogen	Carbon monoxide	Carbon dioxide	○○○●
142. Which type of reaction is the halogenation of alkanes?	Elimination	Polymerization	Addition	Substitution	○○○●
143. Which type of reaction is the addition of H_2 to ethene?	Addition (hydrogenation)	Elimination	Combustion	Substitution	●○○○
144. What is the role of Zn and acid in the reduction of alkyl halides?	Produce chlorine	Act as a solvent	Produce nascent hydrogen	Produce oxygen	○○●○
145. The product of hydrogenation of any alkene is an:	Acid	Alkane	Alcohol	Alkyne	○●○○
146. The simplest unsaturated hydrocarbon with a double bond is:	Ethene	Methane	Ethyne	Ethane	●○○○
147. The simplest unsaturated hydrocarbon with a triple bond is:	Ethene	Ethyne	Methane	Ethane	○●○○
148. Alkanes are insoluble in water because they are:	Ionic	Metallic	Polar	Non-polar	○○○●
149. Hydrocarbons burn in excess oxygen to produce:	CO and H_2	C and H_2	CO_2 and H_2O	N_2 and H_2O	○○●○

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Questions	A	B	C	D	A B C D
150. The explosive reaction of CH_4 with Cl_2 in direct sunlight forms carbon and:	HCl	Cl_2	CO	H_2	●○○○

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