**Q1/ Draw the chemical structure for the following**

**2-Bromo-3-methyl-butane , Furan , 2,2,3-Trimethyl heptane, 1,3-Hexadiene , 2-Pentene,**

**Toluene , Phenole ,Anthracene ,Aniline , o-Dibromobenzene ,Pyrol, 2-Pentyne**

**Q2/ Define the following:**

**Structural formula, , Cycloalkane, , Trans-isomer, Functional groups ,Homocyclic compound ,Aromatic compound,Cis-isomer ,Homocyclic compound , Hydrocarbon,Dienes,Free radical**

**Q3/ What are the most physical properties of alkanes?**

**Q4/ Write addition of HBr to 1-Propene in peroxide and with out of it?**

**Q5/Prepare cyclohexane from benzene?**

**Q6/-Count classes of carbons according to their binding to other carbon?**

**Q7/ Explain why benzene ring undergoes neucleophlic substitution reaction?**

**Q8/What are the most physical properties of alkenes?**

**Q9/ Complete the following chemical reactions:**

1. **C4H10 + Na ?**

**2- CH3-CH=CH2 + Br2 ?**

**3- CH3-CH=CH-CH3 + KMnO4 ?**

***4 – C2H5MgBr + H2O******? + ?***

***5- 1,4 -dichloropropane***  *+****Zn*** ***? ? + ?***

***6- Propane +H2O***

**Q10/ Draw the chemical structure for five of the following:**

**3,3-Dibromopentane, , 2-Butene , Cyclohexanol, 2,3-Dimethyl butane, Dimethyl ether**

**Toluene ,2-Methyl-1-propene**

**Q11/ Define five of the following:**

**Molecural formula, , Aromatic compound , Hydrocarbon, Free radical, Polymerization**

**Concerted reaction, Trans isomer**

**Q12/ Write reduction reaction of benzene?**

**Q13/-Write addition of HBr to1- Propene in peroxide and with out of it?**

**Q14/ Complete the following chemical reactions: only five**

**1 -C2H6+ KMnO4 ?**

**2- C4H10 + O2 ? + ?**

**3- C3H8 + HNO3 ? + ?**

***4 - CH3MgBr + H2O******? + ?***

***5- 1,4 -dichlorobutane***  *+****Zn*** ***? ? + ?***

***6- Etanol +/95 H2SO4*** *?+ ?*

**Q15/ Choose the most correct answer for each of the following**

**1- If a hydrogen is removed from an alkane it can be used as substitut functional group called:**

**a:alkyne , b:alkylhalide, c:alkyle group, d: diene**

**2-The name of the hydrocarbone with three carbon atoms and having only single bonds between carbone atom is: a:Propane , b:ethane, c:butane, d:methane**

**3- What element forms the selekton of organic molecules?**

**a:hydrogen , b:oxygen, c:carbone , d:nitrogen**

**4- Alkanes from C1-C4 at room temperature are:**

**a:gas , b:solid , c:liquid, d:non of them**

**5-The carbone-carbone double bond is a functional group in a family compounds of:**

**a:alkenes , b:alkanes , c:alkynes , d:alcohol**

**6-Which factor is most important in determining the chemistry of an organic molecule?**

**a:melting point, b:functional group , c:the number of C-C bonds , d:boiling point**

**7-Bayer test used to distinguish between :**

**a:alkane&aldehyde , b:alkane&alkene, c:alkane &ketone , d:alkane&alkyne**

**8-Isomers with similar groups on the same side are called as:**

**a:trans, b:cis, c:toutomerism , d:non of them**

**9- Alkanes are typically : a:reactive , b:moderately reactive , c:non reactive**

**10-The formula that showes the way by which the atoms are attached to one another is:**

**a:molecular formula , b:structural formula , c:emprical formula**

***Q16/ Write friedel crafts acylation reaction?***

***Q17/Prepare acetophenone from benzene and uses what are you needed for this reaction?***

***Q18/ Commplete this reaction:***

***Benzene +Acetyl chloride ? + ?***

***Q19/Prepare from benzene the following compounds:***

***Chloro bebzene ,Acetophenone , Toluene***

***Lec.Nawroz omer***