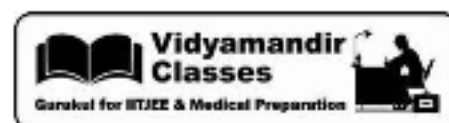




2

of 2



13. How will you convert benzene into :

(i) p-nitrobromobenzene

(ii) m-nitrochlorobenzene

(iii) p-nitrotoluene

(iv) acetophenone

Short Answer Type-II (3 Marks)

14. In the alkane $\text{H}_3\text{CCH}_2 - \text{C}(\text{CH}_3)_2 - \text{CH}_2\text{CH}(\text{CH}_3)_2$, identify 1° , 2° , 3° carbon atoms and give the number of H-atoms bonded to each one of these.

15. What effect does branching of an alkane chain has on its boiling point ?

16. Addition of HBr to propene yields 2-bromopropane, while in the presence of benzoyl peroxide, the same reaction yields 1-bromopropane. Explain and give mechanism.

17. Write down the products of ozonolysis of 1, 2-dimethyl benzene (o-xylene). How does the result support Kekule structure of benzene ?

18. Arrange benzene, n-hexane and ethyne in decreasing order of acidic behaviour. Also give reason for this behaviour.

19. Why does benzene undergo electrophilic substitution reactions easily and nucleophilic substitutions reactions with difficulty ?

Long Answer Type (5 Marks)

20. How would you convert the following compounds into benzene ?

(i) Ethyne

(ii) Ethene

(iii) Hexane

21. Arrange the following set of compounds in order of their decreasing reactivity with an electrophile, E^+

(a) Chlorobenzene, 2, 4-dinitrochlorobenzene, p-nitrochlorobenzene.

(b) Toluene, $p - \text{H}_3\text{C} - \text{C}_6\text{H}_4 - \text{NO}_2$, $p - \text{O}_2\text{N} - \text{C}_6\text{H}_4 - \text{NO}_2$.

22. Out of benzene, m-dinitrobenzene and toluene which will undergo nitration most easily and why ?

23. Suggest the name of a Lewis acid other than anhydrous aluminium chloride (AlCl_3) which can be used during ethylation of benzene.

24. Draw the structures of cis-and trans-isomers of the following compounds. Also write their IUPAC names.

(i) $\text{CHCl} = \text{CHCl}$

(ii) $\text{C}_2\text{H}_5\text{C}(\text{CH}_3) = \text{C}(\text{CH}_3)\text{C}_2\text{H}_5$

25. How will you convert ethanoic acid into benzene ?