

**PRAADIS EDUCATION**

**CHAPETR-11**

**ALCOHOLS,PHENOLS AND ETHERS**

**MULTIPLE CHOICE QUESTIONS (MCQs)**

Q.1 What is the IUPAC name of Vinyl alcohol ?

- (a) Ethanol
- (b) Methanol
- (c) Ethenol
- (d) Methenol

ANS: (c)

Q.2. Which of the following is more acidic than alcohol ?

- (a) Phenol
- (b) Cyclohexanol
- (c) Benzyl alcohol
- (d) Ethenol

ANS: ( a)

Q.3. Which one of the following compound is obtained by dehydrogenation of secondary alcohols?

- a) Ketone
- b) Aldehyde
- c) Carboxylic acid
- d) Amine

ANS: (a)

Q.4. The reaction of carboxylic acid and alcohol catalysed by conc.H<sub>2</sub>SO<sub>4</sub> is called ?

- a) Dehydration
- b) Saponification
- c) Esterification
- d) Neutralisation

ANS: (c)

Q.5. Which of the following alcohol is most soluble in water

- a) Propanol
- b) Hexanol
- c) Pentanol
- d) Butanol

ANS:( a)

Q.6. On heating aqueous solution of benzene diazonium chloride , which of the following is formed

- (a) benzene
- (b) chloro benzene
- (c) phenol
- (d) aniline

ANS:( c)

Q.7. Catalytic dehydrogenation of a primary alcohol gives a

- (a) Ketone
- (b) Aldehyde
- (c) Sec . alcohol
- (d) Ester

ANS:( b)

Q.8 Ethyl alcohol obtained by fermentation of starch is called wash and what is its purity?

- (a) 15%
- (b) 99%
- (c) 99.9%
- (d) 95%

ANS:( a)

Q.9 Which chemical is used to distinguish between phenol and benzyl alcohol.

- a).  $\text{NaHCO}_3$
- b).  $\text{FeCl}_3$
- c). Iodoform test
- d). none of the above

ANS:( b)

Q.10 Which is most acidic

- a). Phenol
- b). 4-nitrophenol
- c). Cresol
- d). 2-nitrophenol

ANS:( d)

11. Benzenediazonium chloride on reaction with phenol in weakly basic medium gives

- a. diphenyl ether
- b. p-hydroxyazobenzene
- c. chlorobenzene
- d. Benzene

Answer: (b)

12. Phenol reacts with bromine in  $\text{CS}_2$  at low temperature to give

- a. m-bromophenol
- b. o-and p-bromophenol
- c. p-bromophenol
- d. 2,4,6-tribromophenol

Answer: (b)

13. When phenol is treated with excess bromine water it gives

- a. m-bromophenol
- b. o- and p-bromophenol
- c. 2,4-dibromophenol
- d. 2,4,6-tribromophenol

Answer: (d)

14. Phenol on reduction with  $\text{H}_2$  in the presence of Ni catalyst gives

- a. benzene
- b. toluene
- c. cyclohexane
- d. Cyclohexanol

Answer: (d)

15. Dehydration of alcohol is an example of

- a. addition reaction
- b. elimination reaction
- c. substitution reaction
- d. redox reaction

Answer: (b)

16. The compound obtained by the reaction of ethene with diborane followed by hydrolysis with alkaline  $\text{H}_2\text{O}_2$  is

- a. ethanol
- b. propanol
- c. ethanol

d. triethyl bromide

Answer: (a)

17. Which of the following is formed when phenol is exposed to air?

- a. o-Benzoquinone
- b. p-Benzoquinone
- c. Phenoquinone
- d. o-and p-Benzoquinone

Answer: (d)

18. Which of the following is formed when glycerol is heated with oxalic acid at 503K?

- a. Glyceric acid
- b. Acrolein
- c. Allyl alcohol
- d. Methanoic acid

Answer: (c)

19. The alcohol which does not react with Lucas reagent is

- a. isobutyl alcohol
- b. n-butanol
- c. tert-butyl alcohol
- d. sec-butyl alcohol

Answer: (b)

20. Phenol is less acidic than

- a. acetic acid
- b. p-methoxyphenol
- c. p-nitrophenol
- d. Ethanol

21. Which of the following reagents can not, be used to oxidise primary alcohols to aldehydes?

(a)  $\text{CrO}_3$  in anhydrous medium

- (b)  $\text{KMnO}_4$  in acidic medium
  - (c) Pyridinium chlorochromate
  - (d) Heat in the presence of Cu at 573 K
- 

22. 1-Phenylethanol can be prepared by the reaction of benzaldehyde with

- (a) methyl bromide
- (b) ethyl iodide and magnesium
- (c) methyl iodide and magnesium (Grignard reagent's)
- (d) methyl bromide and aluminium bromide

23. Which of the following alcohols will give the most stable carbocation during dehydration?

- (a) 2-methyl-1-propanol
- (b) 2-methyl-2-propanol
- (c) 1-Butanol
- (d) 2-Butanol

24. A compound X with the molecular formula  $\text{C}_2\text{H}_8\text{O}$  can be oxidised to another compound Y whose molecular formulae is  $\text{C}_3\text{H}_6\text{O}_2$ . The compound X may be

- (a)  $\text{CH}_3\text{CH}_2\text{OCH}_3$
- (b)  $\text{CH}_3\text{CH}_2\text{CHO}$
- (c)  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$
- (d)  $\text{CH}_3\text{CHOHCH}_3$

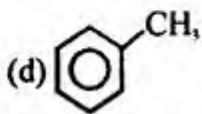
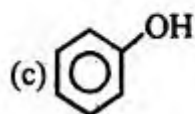
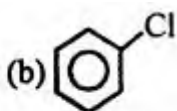
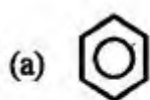
25. Order of esterification of alcohols are

- (a)  $3^\circ > 1^\circ > 2^\circ$
- (b)  $2^\circ > 3^\circ > 1^\circ$
- (c)  $1^\circ > 2^\circ > 3^\circ$
- (d) None of these

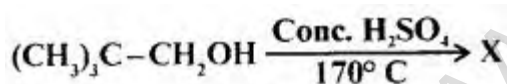
26. What happens when tertiary butyl alcohol is passed over heated copper at  $300^\circ\text{C}$ ?

- (a) Secondary butyl alcohol is formed
- (b) 2-methylpropene is formed
- (c) 1-butene is formed
- (d) Butanol is formed

27. Which of the following compounds will be most easily attacked by an electrophile?



28.



In the reaction, X is

- (a)  $(\text{CH}_3)_2\text{C} = \text{CHCH}_3$
- (b)  $\text{CH}_3\text{C} = \text{CH}$
- (c)  $(\text{CH}_3)_2\text{CHCH}_2\text{CH}_3$
- (d)  $\text{CH}_3 - \text{CH}_2 - \underset{\text{CH}_3}{\text{C}} = \text{CH}_2$

29. What would be the reactant and reagent used to obtain 2, 4-dimethyl pentan-3-ol?

- (a) Propanal and propyl magnesium bromide
- (b) 3-methylbutanal and 2-methyl magnesium iodide
- (c) 2-dimethylpropanone and methyl magnesium iodide
- (d) 2-methylpropanal and isopropyl magnesium iodide

30. The decreasing order of boiling point of the following alcohols is

- (a) 3-methylbutan-2-ol > 2-methylbutan-2-ol > pentan-1-ol
- (b) Pentan-1-ol > 3-methylbutan-2-ol > 2-methylbutan-2-ol

- (c) 2-methylbutan-2-ol > 3-methylbutan-2-ol > pentan-1-ol  
(d) 2-methylbutan-2-ol > pentan-1-ol > 3-methylbutan-2-ol

31. Acid catalysed dehydration of t-butanol is faster than that of n-butanol because

- (a) tertiary carbocation is more stable than primary carbocation  
(b) primary carbocation is more stable than tertiary carbocation  
(c) t-butanol has a higher boiling point  
(d) rearrangement takes place during dehydration of t-butanol

32. An unknown alcohol is treated with "Lucas reagent" to determine whether the alcohol is primary, secondary or tertiary. Which alcohol reacts fastest and by what mechanism?

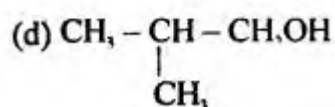
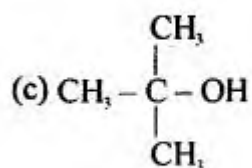
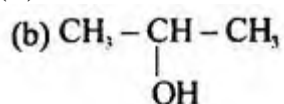
- (a) Tertiary alcohol by  $S_N^2$   
(b) Secondary alcohol by  $S_N^1$   
(c) Tertiary alcohol by  $S_N^1$   
(d) Secondary alcohol by  $S_N^2$

33. An alcohol X when treated with hot conc.  $H_2SO_4$  gave an alkene Y with formula  $C_4H_8$ . This alkene on ozonolysis gives single product with molecular formula  $C_2H_4O$ . The alcohol is

- (a) butan-1-ol,  
(b) butan-2-ol  
(c) 2-methylpropan-1-ol  
(d) 2,2-dimethylbutan-1-ol

34. Which of the following alcohols reacts most readily with Lucas reagent?





35. Propanone on reaction with alkyl magnesium bromide followed by hydrolysis will produce

- (a) primary alcohol
- (b) secondary alcohol
- (c) tertiary alcohol
- (d) carboxylic acid

36. Vapours of an alcohol X when passed over hot reduced copper, produce an alkene, the alcohol is

- (a) primary alcohol
- (b) secondary alcohol
- (c) tertiary alcohol
- (d) dihydric alcohol

37. Phenol when treated with excess of bromine water gives a white precipitate of

- (a) 2, 4, 6-tribromophenol
- (b) o-bromophenol
- (c) p-bromophenol
- (d) bromobenzene

38. Picric acid is a yellow coloured compound. Its chemical name is

- (a) m-nitrobenzoic acid
- (b) 2, 4, 6-trinitrophenol
- (c) 2, 4, 6-tribromophenol
- (d) p-nitrophenol

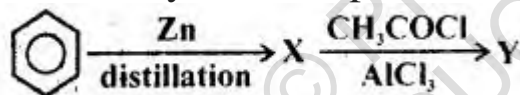
39. Ortho-nitrophenol is less soluble in water than, p- and m-nitrophenols because

- (a) o-nitrophenol shows intramolecular H-bonding
  - (b) o-nitrophenol shows intermolecular H-bonding
  - (c) melting point of o-nitrophenol is lower than those of m- and p-isomers
  - (d) o-nitrophenol is more volatile in steam than those of m- and p-isomers
- 

40. The best reagent to convert pent-3-en-2-ol into pent-3-en-2-one is

- (a) acidic permanganate
- (b) acidic dichromate
- (c) chromic anhydride in glacial acetic acid
- (d) pyridinium chlorochromate

41. Identify the final product of the reaction sequence.



- (a) Benzophenone
- (b) Acetophenone
- (c) Diphenyl
- (d) Methyl salicylate

42. Arrange the following alcohols in order of increasing reactivity towards sodium metal.

- (i)  $(\text{CH}_3)_3\text{C-OH}$
- (ii)  $(\text{CH}_3)_2\text{CH-OH}$
- (iii)  $\text{CH}_3\text{CH}_2\text{OH}$
- (a) (iii) < (ii) < (i)
- (b) (ii) > (i) < (iii)
- (c) (i) < (ii) < (iii)
- (d) (iii) < (i) < (ii)

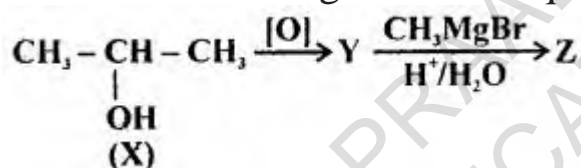
43. The reaction between phenol and chloroform in the presence of aqueous NaOH is

- (a) nucleophilic substitution reaction
- (b) electrophilic addition reaction
- (c) electrophilic substitution reaction
- (d) nucleophilic addition reaction

44. The most suitable reagent for the conversion of  $RCH_2OH \rightarrow RCHO$  is

- (a)  $K_2Cr_2O_7$
- (b)  $CrO_3$
- (c)  $KMnO_4$
- (d) PCC

45. In the following reaction sequence Z is



- (a) butan-1-ol
- (b) butan-2-ol
- (c) 2-methylpropan-2-ol
- (d) 1, 1-dimethylethanol

46. The major product of acid catalysed dehydration of 2-methylcyclohexanol and butan-1-ol are respectively

- (a) 1-methylcyclohexene and but-1-ene
- (b) 2-methylcyclohexene and but-2-ene
- (c) 2-methylcyclohexene and butane
- (d) 1-methylcyclohexene and but-2-ene

47. Tertiary butyl alcohol gives tertiary butyl chloride on treatment with

- (a) Conc HCl/anhydrous  $ZnCl_2$
- (b) KCN

- (c) NaOCl
- (d) Cl<sub>2</sub>

48. Which of the following alcohol is dehydrated most easily with cone. H<sub>2</sub>SO<sub>4</sub>?

- (a) p-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>CH(OH)CH<sub>3</sub>
- (b) p-ClC<sub>6</sub>H<sub>4</sub>CH(OH)CH<sub>3</sub>
- (c) p-CH<sub>3</sub>OC<sub>6</sub>H<sub>4</sub>CH(OH)CH<sub>3</sub>
- (d) C<sub>6</sub>H<sub>5</sub>CH(OH)CH<sub>3</sub>

49. Conversion of phenol to salicylic acid and to salicylaldehyde are known as (respectively)

- (a) Reimer-Tiemann reaction and Kolbe's reaction
- (b) Williamson's synthesis and Hydroboration-oxidation
- (c) Kolbe's reaction and Williamson's synthesis
- (d) Kolbe's reaction and Reimer-Tiemann reaction

50. Which of the following is phenol?

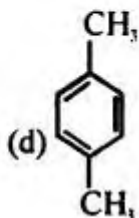
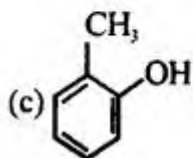
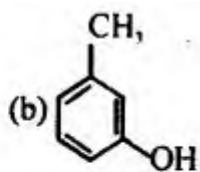
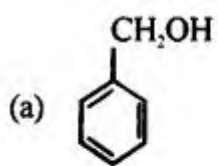
- (a) Cresol
- (b) Catechol
- (c) Benzenol
- (d) All of these

51. Benzoquinone is prepared by reaction of phenol with

- (a) Na<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>, H<sub>2</sub>SO<sub>4</sub>
- (b) KMnO<sub>4</sub>, H<sub>2</sub>SO<sub>4</sub>
- (c) Na<sub>2</sub>CrO<sub>4</sub>, HCl
- (d) K<sub>2</sub>MnO<sub>4</sub>, H<sub>2</sub>SO<sub>4</sub>

52. Which of the following compounds will give tribromo derivative

on treatment with bromine water?



53. The major product obtained on interaction of phenol with sodium hydroxide and carbon dioxide is

- (a) benzoic acid
- (b) salicylaldehyde
- (c) salicylic acid
- (d) phthalic acid

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