JARS EDUCATION
Shop No. 1,2,3,4 Ayodhya Nagari, Hendre Pada, Badlapur (West), Thane, Maharashtra - 421503
: 99672 40893
83696 11389
99671 69853

Practice Paper

Time : 2 Hour | 11th standard (JEE BASED) HYDROCARBONS | Total Marks : 200

Chemistry

*** SECTION - A** [160]

1. Number of bromo derivatives obtained on treating ethane with excess of Br_2, in diffused sunlight is ..... .
   (A) 6 (B) 3 (C) 12 (D) 9
2. Which of the following compounds is used in antiknock compositions to prevent the deposition of oxides of lead on spark plug, combustion chamber and exhaust pipe
   (A) Glycerol (B) Glycol
   (C) $1,2-$ dibromoethane (D) Benzene
3. In alkanes, the bond angle is.....^{o}
   (A) 109.5 (B) 109 (C) 120 (D) 180
4. Propionic acid is subjected to reduction with hydroiodic acid in the presence of a little P, the product formed is
   (A) Ethane (B) Propane (C) Butane (D) None of these
5. CH_3MgI will give methane with
   (A) C_2H_5OH (B) $CH_3-CH_2-NH_2$
   (C) $CH_3-CO-CH_3$ (D) Both (a) and (b)
6. Ethyl iodide and $n-$ propyl iodide are allowed to undergo Wurtz reaction. The alkane which will not be obtained in this reaction is
   (A) butane (B) propane (C) pentane (D) hexane
7. Match list I with list II and then select the correct answer from the codes given below the lists

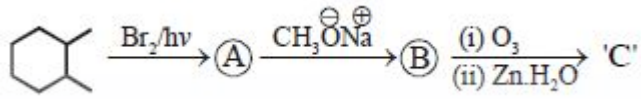
	list I		list II
$A.$	Butane $\rightarrow$ Isobutane	(a)	Cracking
$B.$	Butane $\rightarrow$ Lower hydrocarbons	(b)	Isomerisation
$C.$	$n-$ Heptane $\rightarrow$ Toluene	(c)	Reed reaction

$D.$	Propane $\rightarrow CH_3CH_2CH_2SO_2Cl$	(d)	Aromatization

(A) $A-b,\ B-a,\ C-d,\ D-c$ (B) $A-b,\ B-d,\ C-a,\ D-c$

(C) $A-b,\ B-c,\ C-d,\ D-a$ (D) $A-b,\ B-d,\ C-c,\ D-a$

8. Final product $'C'$ is ?



(A) (B) (C) (D)

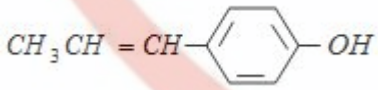
9. $1-$ Butyne can be distinguished most easily from $2-$ butyne by

(A) bromine water (B) ozonolysis (C) Tollen's reagent (D) $KMnO_4$ solution

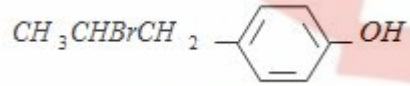
10. Which one of the following on ozonolysis followed by oxidation will give adipic acid

(A) (B) (C) (D)

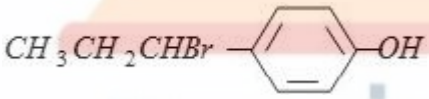
11. The reaction of with HBr gives



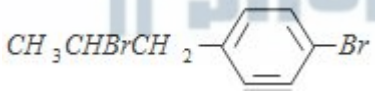
(A)



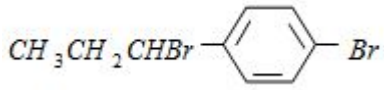
(B)



(C)



(D)



12. Cyclopentene on treatment with alkaline $KMnO_4$ gives

(A) Cyclopentanol

(B) trans $1,2-$cyclopentanediol

(C) cis $1,2-$cyclopentanediol

(D) $1:1$ mixture of cis and trans $1,2-$cyclopentanediol

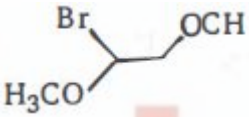
13. Conjugate double bond is present in

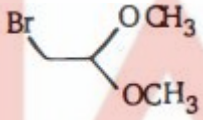
(A) Propylene (B) Butadiene (C) Isobutylene (D) Butylene

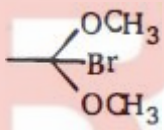
14. Ethylene reacts with ozone to give

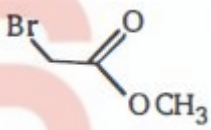
(A) Formaldehyde (B) Ethyl alcohol (C) Ozonide (D) Acetaldehyde

15. Methyl vinyl ether, $H_2C=CH-OCH_3$, reacts with Br_2/CH_3OH. If methanol is reacting as water would, and if this reaction follows a typical mechanism of electrophilic addition, what would be the expected product ?

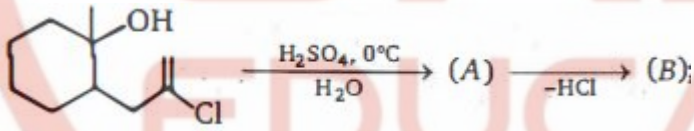
(A) 

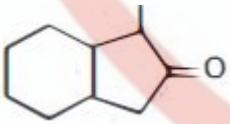
(B) 

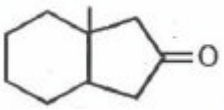
(C) 

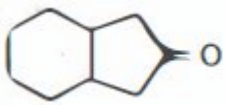
(D) 

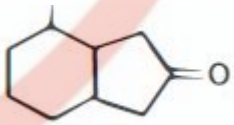
16. Product (B) of the reaction is



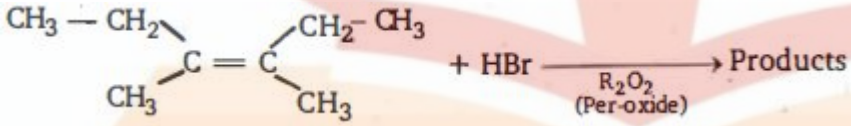
(A) 

(B) 

(C) 

(D) 

17. How many products will be formed in above reaction ?



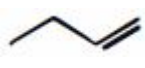
(A) 2 (B) 4 (C) 3 (D) 6

18. cis- 2 -butene $\xrightarrow[Peroxide]{HBr}$ product ; Product of the reaction is

(A) Racemic (B) Diastereomer (C) Meso (D) E anq Z isomer

19. $CH_3-CH-CO_2K$ (with $CH_3-CH-CO_2K$ below) $\xrightarrow{electrolysis}(A)\,(Major)$

Major product (A) of the above reaction

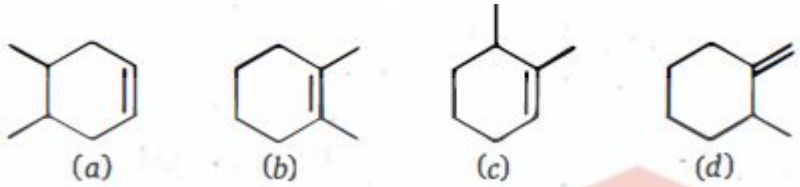
(A) 

(B) 

(C) 

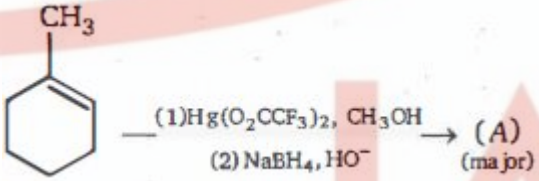
(D)

20. Decreasing order of heat evolved upon catalytic hydrogenation of given reactants with a $H_2\,(Pd/C)$ is

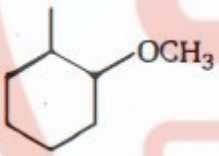


(A) $b > c > a > d$ (B) $d > a > c > b$ (C) $d > c > a > b$ (D) $c > b > c > d$

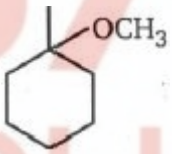
21. The product (A) of given alkoxymercuration de-mercuration is



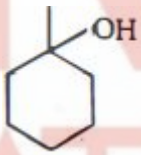
(A)



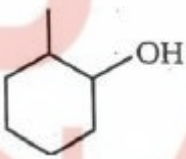
(B)



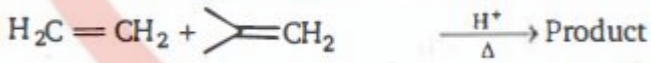
(C)



(D)



22. Major product of the given reaction is



(A)

(B)

(C)

(D) $H_2C = \overset{\overset{CH_3}{|}}{C} - CH_2 - CH_2 - CH_3$

23. Identify Z in the sequence of reactions :

$CH_3CH_2CH=CH_2 \xrightarrow{HBr/H_2o_2} Y \xrightarrow{C_2H_5ONa} Z$

(A) $CH_3-(CH_2)_3-O-CH_2CH_3$

(B) $(CH_3)_2CH-O-CH_2CH_3$

(C) $CH_3(CH_2)_4-O-CH_3$

(D) $CH_3CH_2-CH(CH_3)-O-CH_2CH_3$

24. Assertion : Acetylene on reacting with sodamide gives sodium acetylide and ammonia.
Reason : sp hybridised carbon atoms of acetylene are considerably electronegative.

(A) If both Assertion and Reason are correct and the Reason is a correct explanation of the Assertion.

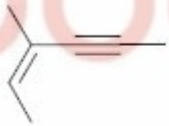
(B) If both Assertion and Reason are correct but Reason is not a correct explanation of the Assertion.

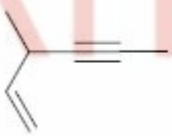
(C) If the Assertion is correct but Reason is incorrect.

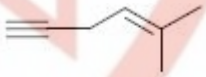
(D) If both the Assertion and Reason are incorrect.

25. Which of the following will produce chiral molecule after treatment with H_2/Lindlar's catalyst ?

(A) 

(B) 

(C) 

(D) 

26. The compound C_3H_4 has a triple bond, which is indicated by its reaction with

(A) Bromine water (B) Bayer's reagent (C) Fehling solution (D) Ammonical silver nitrate

27. Which of the following shows linear structure

(A) Ethane (B) Ethene (C) Acetylene (D) CCl_4

28. Acetylene can be obtained by the reaction

(A) $HCOOK \xrightarrow{\text{electrolysis}}$

(B) $CHI_3+6Ag+CHI_3 \xrightarrow{\Delta}$

(C) $CH_3CH_2OH \xrightarrow[443\,^oC]{\text{Conc. } H_2SO_4}$

(D) $Be_2C+H_2O \rightarrow$

29. Which of the following compound do not release CO_2 on oxidative ozonolysis

(A) $1-$ butene (B) $2-$ butyne (C) Propyne (D) Ethene

30. $CH_3 - CH_2 - CH_2 - C \equiv CH + \underset{\substack{Lithium \\ amide}}{LiNH_2} \rightarrow (A) \xrightarrow{(CH_3)_2SO_4} (B)$

Give the structural formula of compound (B)

(A) $CH_3 - (CH_2)_2 - C \equiv C - SO_3H$

(B) $CH_3 - (CH_2)_2 - C \equiv C - CH_3$

(C) $CH_3 - (CH_2)_2 - C \equiv C - CH_2 - \underset{\underset{O}{\|}}{\overset{O}{\|}}{O - S - H}$

(D) $CH_3 - CH_2 - C \equiv C - CH_2$

31. The most common type of reaction in aromatic compounds is

(A) Elimination reaction

(B) Addition reaction

(C) Electrophilic substitution reaction

(D) Rearrangement reaction

32. Xylenes on oxidation with acidic $KMnO_4$ gives

(A) Terphthalic acid (B) Phthalic acid (C) Isophthalic acid (D) All of these

33. Amongst the following, the compound that is nitrated with difficulty is

(A) Benzene (B) Nitrobenzene (C) Toluene (D) Phenol

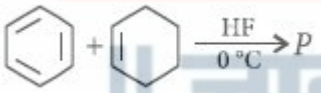
34. After ozonolysis of benzene (not hydrolysis), the product is

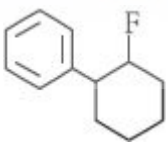
(A) Benzene triozonide (B) Glyoxal (C) Ethanediol (D) All of them

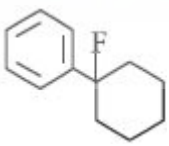
35. Which of the following is not o,p— directing group

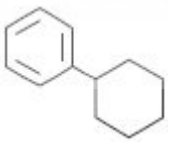
(A) $-NH_2$ (B) $-OH$ (C) $-X$ (halogens) (D) $-CHO$

36. In the given reaction, the product P is



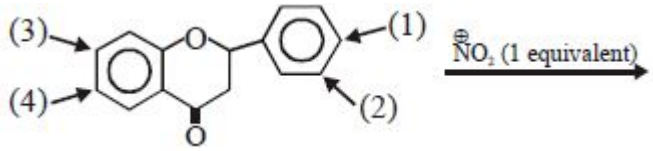
(A) 

(B) 

(C) 

(D) 

37. the nitration will mainly take place at position -



(A) 1 (B) 2 (C) 3 (D) 4

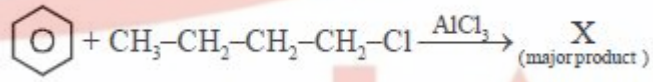
38. Number of benzene derivatives of C_7H_7Cl is :

(A) 2 (B) 4 (C) 5 (D) 6

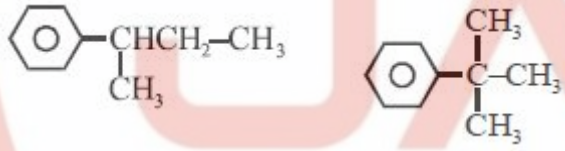
39. Which of the following is the least reactive in the case of bromination :

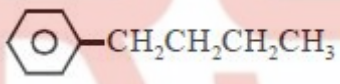
(A) Phenol (B) Aniline (C) Nitrobenzene (D) Anisole

40. major product X is



(A) (B) (C) (D) None of these





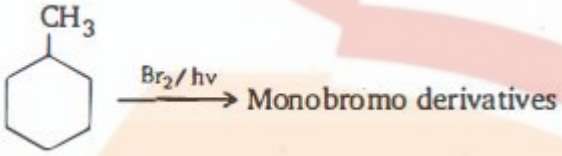
*** SECTION - B** **[40]**

41. The total number of benzene derivatives with molecular formula $C_6H_3Cl_3$ is

42. On catalytic reduction (H_2/Pt) how many alkenes will give 2 -methylbutane ?

43. $1,2-$ Dibromopropane on treatement with X moles of $NaNH_2$ followed by reaction with ethyl bromide give a $2-$ pentyne the value of X is

44. The number of possible monobromo products is (excluding stereoisomers)



45. The number of secondary hydrogens in $2,2-$ dimethyl butane is

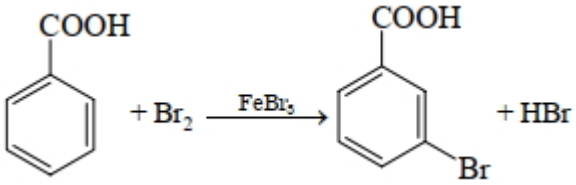
46. A sample of petrol is a mixture of 30% $n-$heptane and 70% iso-octane. The sample has octane number

47. The major product $'A'$ of the following given reaction has ..... sp^2 hybridized carbon atoms.

$2,7-$Dimethyl $1-2,6-$ octadiene $\overset{H^+}{\rightarrow}$ A (Major Product)

48. Consider the above reaction where $6.1\,g$ of benzoic acid is used to get $7.8\,g$ of m -bromo benzoic acid. The percentage yield of the product is ..... .

(Round off to the Nearest integer) [Given : Atomic masses : $C = 12.0\,u, H : 1.0\,u, O : 16.0\,u, Br = 80.0\,u$]



49. In the following sequence of reactions the maximum number of atoms present in molecule 'C' in one plane is

$$A \xrightarrow[Cu\ tube]{\text{Redhot}} \text{B} \xrightarrow[Anhydrous AlCl_3]{CH_3Cl(1eq} \text{C}$$

(A is a lowest molecular weight alkyne)

50. An organic compound P having molecular formula $C_6H_6O_3$ gives ferric chloride test and does not have intramolecular hydrogen bond. The compound P reacts with 3 equivalents of NH_2OH to produce oxime Q. Treatment of P with excess methyl iodide in the presence of KOH produces compound R as the major product. Reaction of R with excess iso-butylmagnesium bromide followed by treatment with H_3O^+gives compound S as the major product.
The total number of methyl $(-CH_3)$ group(s) in compound S is. . . .

----- -----