JEE MAIN ANSWER KEY & SOLUTIONS

SUBJECT :- CHEMISTRY
CLASS :- 11th **PAPER CODE :- CWT-12**
CHAPTER :- HYDROCARBON

ANSWER KEY

1.	(A)	**2.**	(A)	**3.**	(B)	**4.**	(B)	**5.**	(B)	**6.**	(B)	**7.**	(A)
8.	(B)	**9.**	(A)	**10.**	(D)	**11.**	(A)	**12.**	(A)	**13.**	(D)	**14.**	(A)
15.	(A)	**16.**	(D)	**17.**	(C)	**18.**	A	**19.**	D	**20.**	B	**21.**	72
22.	4	**23.**	4	**24.**	4	**25.**	6	**26.**	5	**27.**	3	**28.**	8
29.	3	**30.**	4										

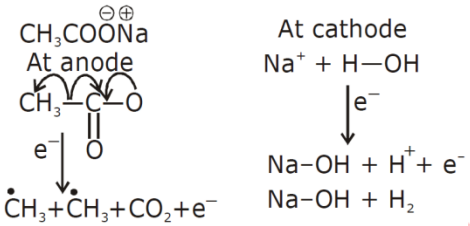
SOLUTIONS

1. (A)

Sol. Rate of reaction R –I > R–Br > R – Cl > R – F
due to low bond dissociation energy.

2. (A)

Sol.

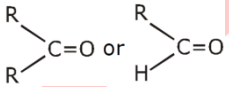


3. (B)

Sol. $R-X \xrightarrow{\text{Red. P+HI}} R-H$

Or

R–OH or



$\longrightarrow R-CH_3$

4. (B)

Sol. $CH_3-CH_2-Cl \xrightarrow[\text{or Caustic potash}]{\text{Alc. KOH}} -CH_2=CH_2$

In dehydrohalogenation the base (alcoholic KOH) abstracts the proton present on the carbon next to the carbon to which the halogen is attached.

5. (B)

Sol. The catalyst used in Kharasch reaction is any peroxide and it apply anti markovnikov's rule.

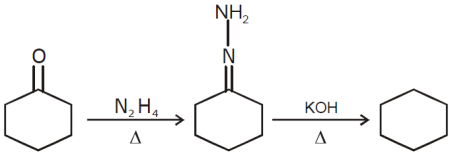
6. (B)

Sol. Mg_2C_3 on hydrolysis gives propyne and $Mg(OH)_2$

$Mg_2C_3+4H_2O \longrightarrow 2Mg(OH)_2 + C_3H_4$

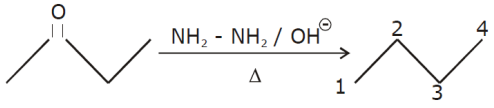
7. (A)

Sol.



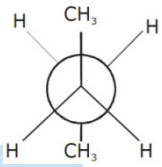
8. (B)

Sol.



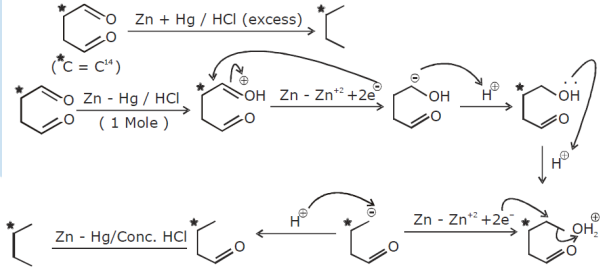
n-Butane

[Most Stable Conformer of n-Butane across C_2-C_3 bond]



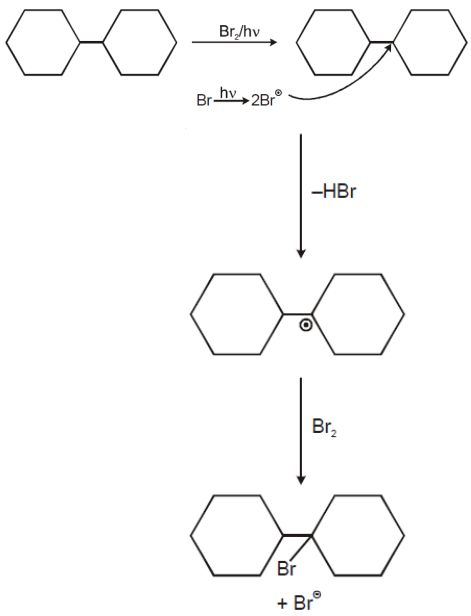
9. (A)

Sol.



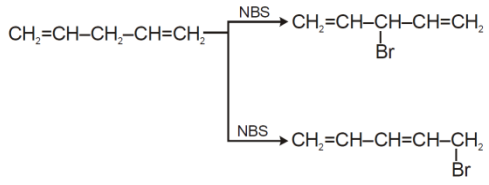
10. (D)

Sol.



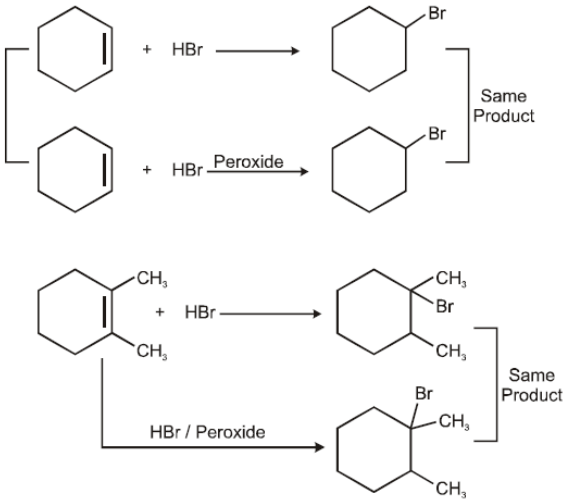
11. (A)

Sol.



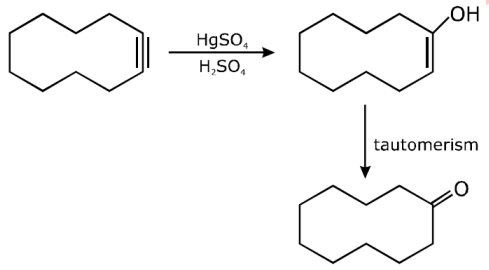
12. (A)

Sol.



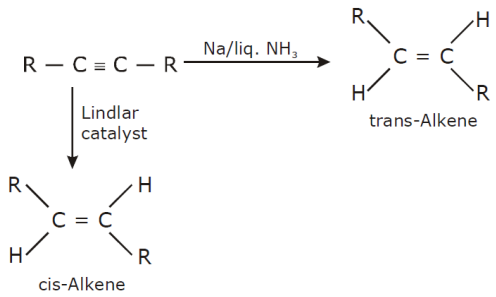
13. (D)

Sol.



14. (A)

Sol.



15. (A)

Sol. $CH_2 = CH–CH=CH_2 + HBr \xrightarrow[\Delta]{40°C} Br–CH_2–CH=CH–CH_3$

16. (D)

Sol. $R'–X + R_2Cu \longrightarrow \underset{\text{Alkanes}}{R–R'} + R–Cu–X$

17. (C)

Sol. A. 2-methylpentane $\xrightarrow{Cl_2}$ five types of monochlorinated compounds

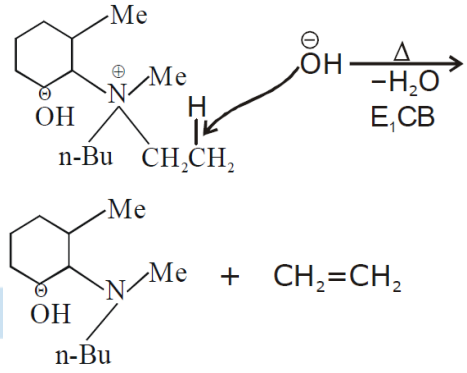
B. 2, 2-dimethylbutane $\xrightarrow{Cl_2}$ three types...

C. 2, 3-dimethylbutane $\xrightarrow{Cl_2}$ two types...

D. n-hexane $\xrightarrow{Cl_2}$ three types....

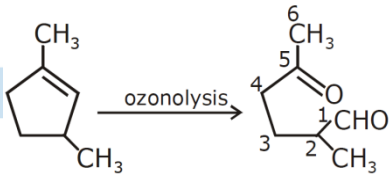
18. A

Sol.



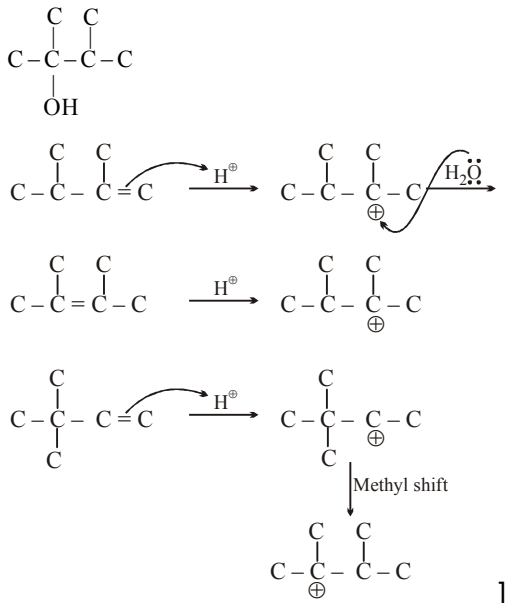
19. D

Sol.



20. B

Sol.



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21. 72

Sol. $CH_3CH_2CH_2CH_3 + Cl_2 \xrightarrow{hv}$

$ClCH_2CH_2CH_2CH_3 + CH_3CH(Cl)-CH_2CH_3$

Reactivity of 2° & 1° H = 3.8 : 1

Reactivity of 1° H = 6 × 1 = 6

Reactivity of 2°H = 3.8 × 4 = 15.2

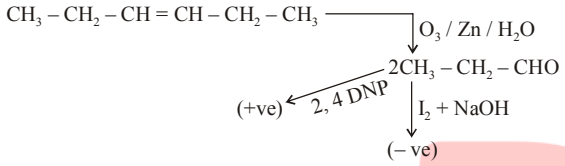
21.2

Amount of primary product = $\frac{6}{21.2} \times 100 = 28.30$

Amount of secondary product = $\frac{15.2}{21.2} \times 100 = 71.7$

22. 4

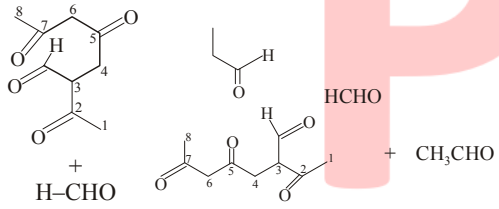
Sol.



4 αH

23. 4

Sol.

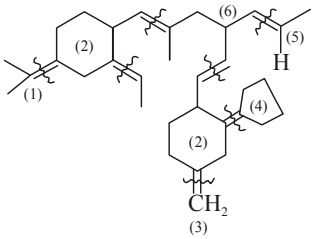


24. 4

Sol. $CH_2 = CH_2$, , $HC \equiv CH$,

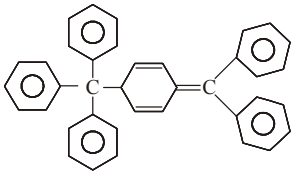
25. 6

Sol.



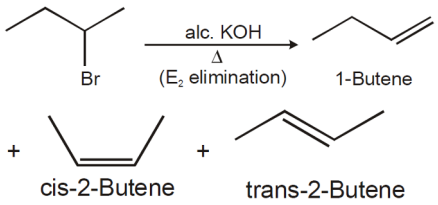
26. 5

Sol.



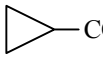
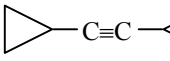
27. 3

Sol.



28. 8

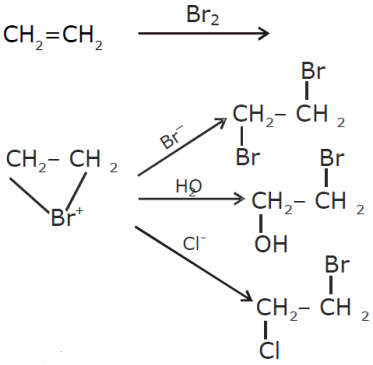
Sol. $C_3H_5–Br \xrightarrow{Mg} C_3H_5MgBr \xrightarrow{CO_2} C_3H_5–COOMgBr \xrightarrow{H_2O/H^+} C_3H_5COOH$ (B)

So B can be  . So structure of compound A is  .

No. of secondary hydrogens in A = 8

29. 3

Sol.



30. 4

Sol. 2–Methyl butanone on monochlorination gives 4 isomers among which 1 and 2 are chiral.