

**JEE MAIN ANSWER KEY & SOLUTIONS**

**SUBJECT :- CHEMISTRY**  
**CLASS :- 12<sup>th</sup>**  
**CHAPTER :- AMINES**

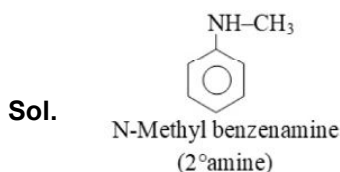
**PAPER CODE :- CWT-10**

**ANSWER KEY**

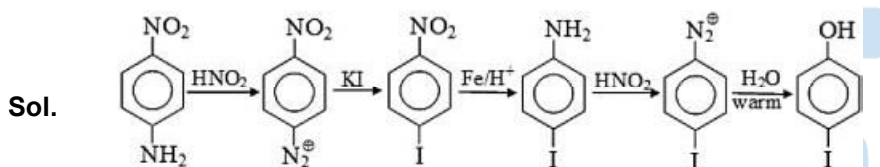
1.	(C)	2.	(B)	3.	(B)	4.	(A)	5.	(D)	6.	(B)	7.	(B)
8.	(B)	9.	(C)	10.	(D)	11.	(B)	12.	(D)	13.	(C)	14.	(A)
15.	(C)	16.	(B)	17.	(C)	18.	(B)	19.	(D)	20.	(B)	21.	3
22.	3	23.	99	24.	5	25.	6	26.	197	27.	6	28.	0
29.	63	30.	4										

**SOLUTIONS**

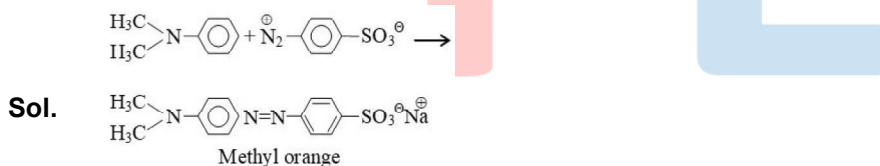
1. (C)



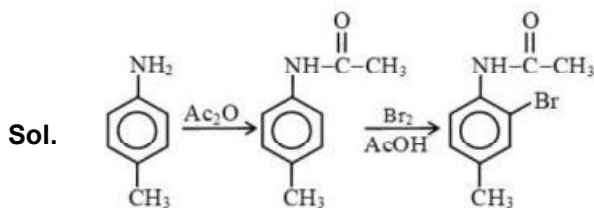
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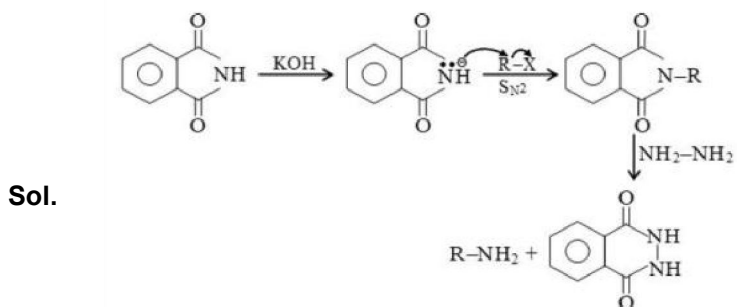
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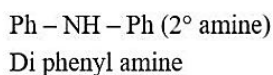
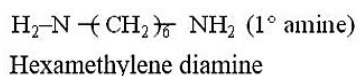
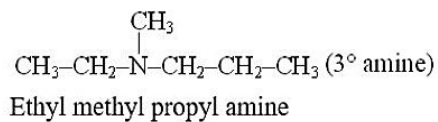
4. (A)



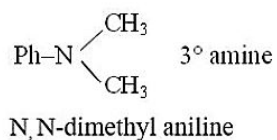
5. (D)



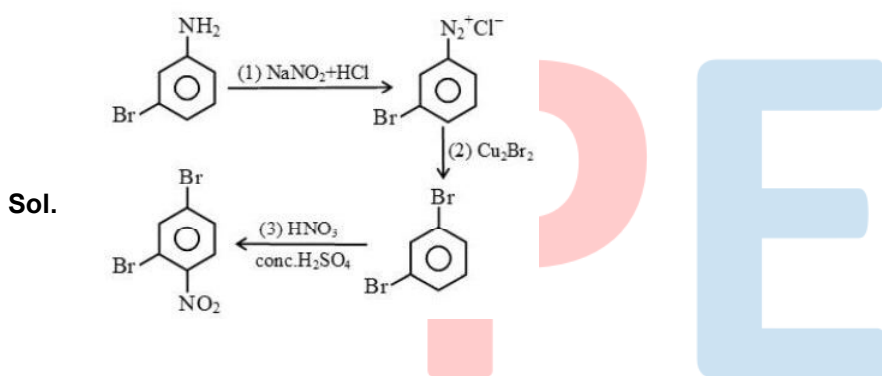
6. (B)



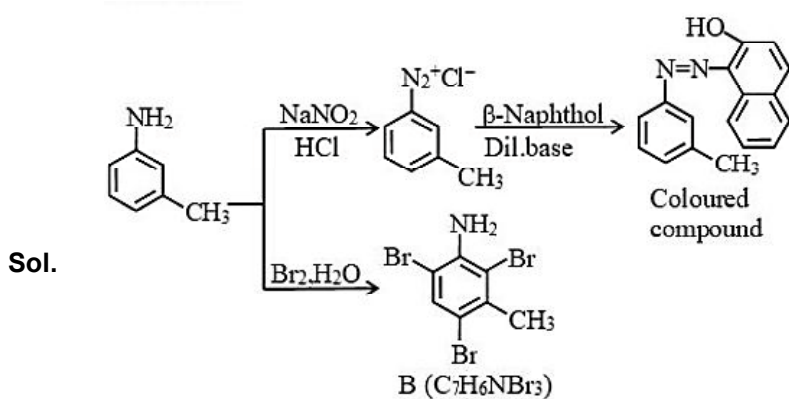
Sol.



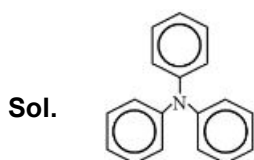
7. (B)



8. (B)



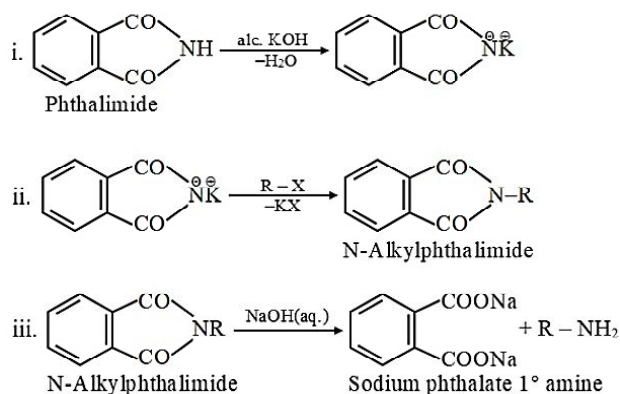
9. (C)



N-atom attached to three same radicals are symmetrical tertiary amine.

10. (D)

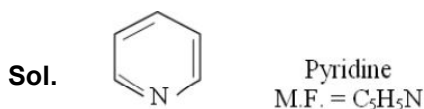
Sol. Gabriel phthalimide synthesis reaction



11. (B)

Sol. Kjeldahl method is not applicable for compounds containing nitrogen in nitro, azo groups and nitrogen in ring, as N of these compounds does not change to ammonium sulphate under these conditions. Hence only aniline can be used for estimation of nitrogen by Kjeldahl's method.

12. (D)



13. (C)

Sol. List I

- A. Benzenesulphonyl chloride
- B. Hoffmann bromamide reaction
- C. Carbylamine reaction
- D. Hoffmann orientation

List II

- III. Hinsberg reagent
- IV. Known reaction of Isocyanates.
- I. Test for primary amines
- II. Anti Saytzeff

14. (A)

Sol. Benzene sulphonyl chloride is Hinsberg reagent.

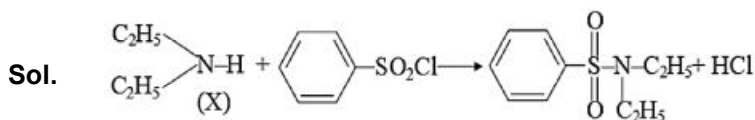
15. (C)

Sol.  $R - CO - NH_2 + 4[X] \xrightarrow{LiAlH_4}$  : Mendius reduction (Incorrect)  
By using Na/EtOH, it is known as Mendius reduction.

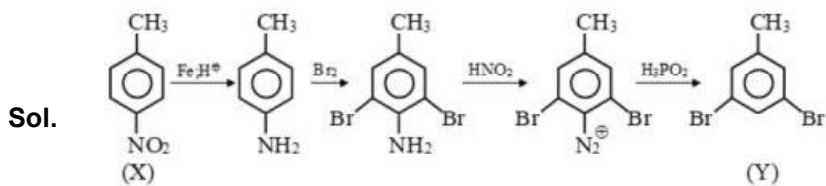
16. (B)

Sol. -NH<sub>2</sub> group directly attached to benzene ring is aromatic amine.

17. (C)

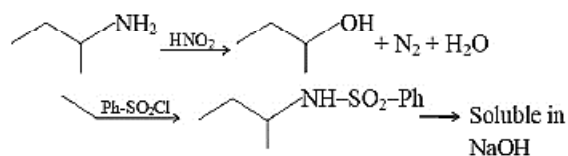


18. (B)



19. (D)

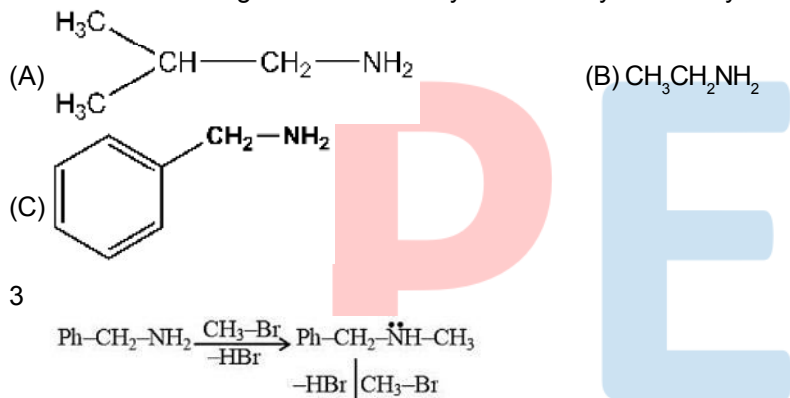
Sol. Must be primary amine having chiral center because it is soluble in KOH after reacting with Hinsberg reagent



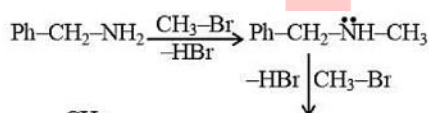
20. (B)

21. 3

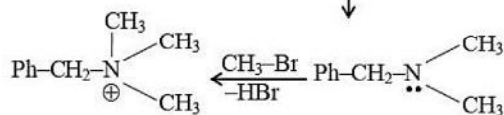
Sol. Only aliphatic primary amines can be synthesized by Gabriel phthalimide synthesis. Out of the given amines the following amines can be synthesized by Gabriel synthesis.



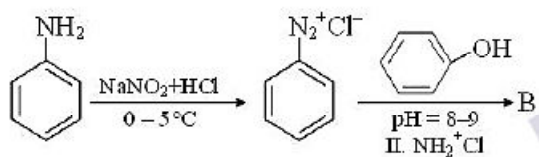
22. 3



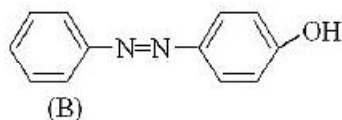
Sol.



23. 99



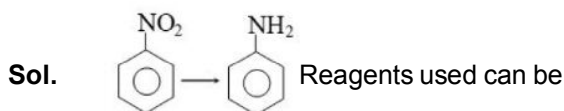
Sol.



Molar mass of B = 198 = x

$$\frac{x}{2} = \frac{198}{2} = 99.00$$

24. 5



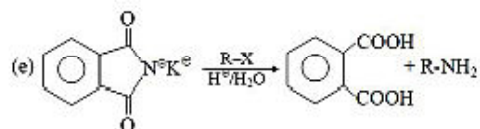
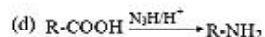
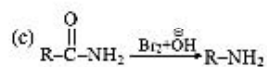
(i) Sn + HCl

(ii) Fe + HCl

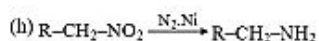
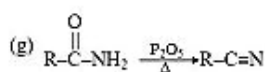
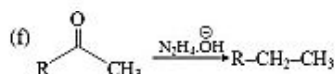
(iii) Zn + HCl (iv)  $\text{H}_2$  - Pd

(v)  $\text{H}_2$  (Raney Ni)

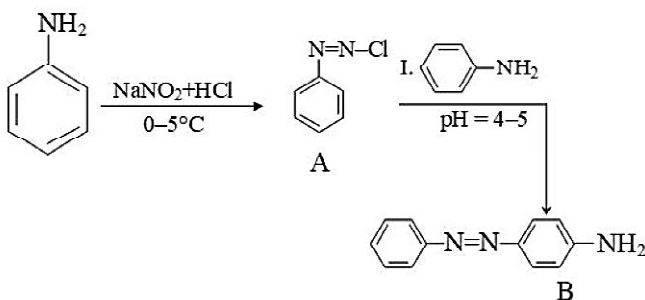
25. 6



Sol.



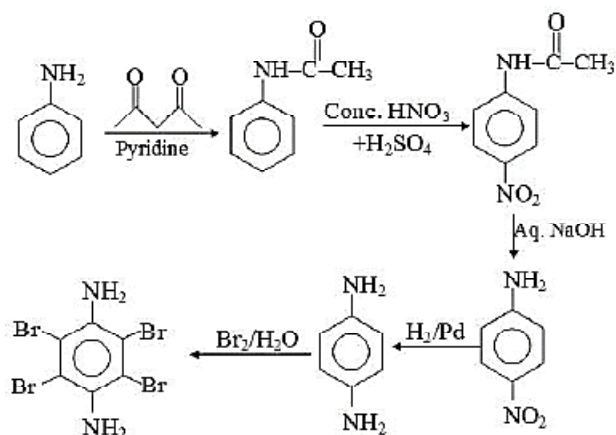
26. 197



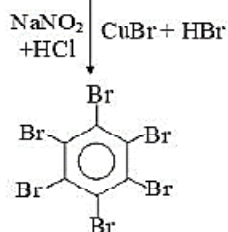
Sol.

MF =  $C_{12}H_{11}N_3$   
 $12 \times 12 \times 11 \times 1 + 14 \times 3 = 197$

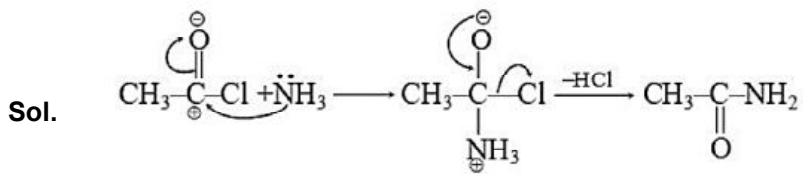
27. 6



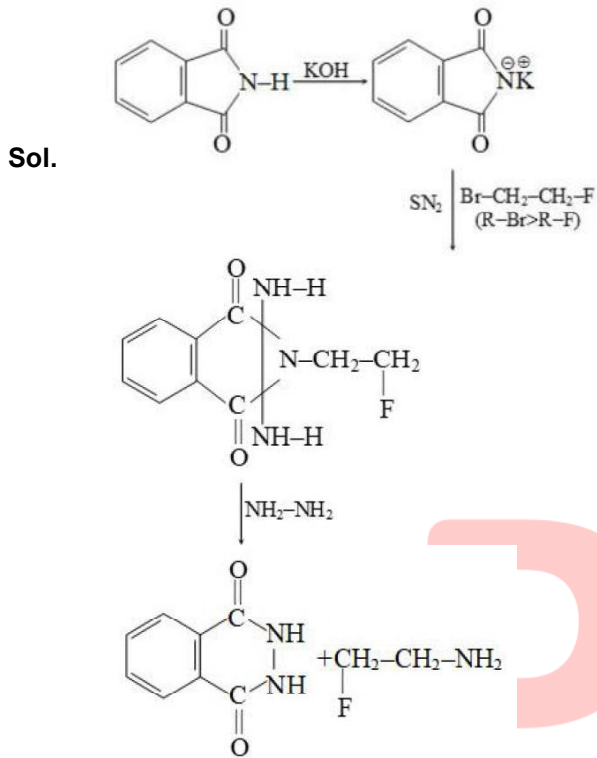
Sol.



28. 0



29. 63



30. 4

Sol. Balanced reaction is

