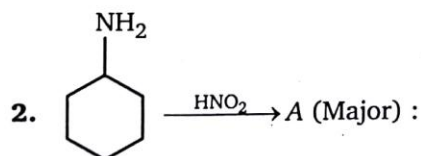
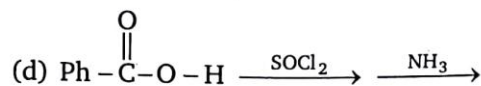
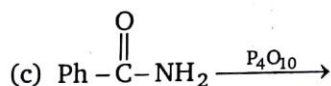
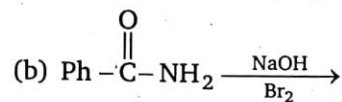
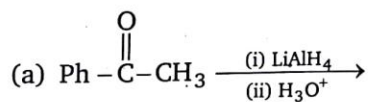


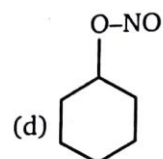
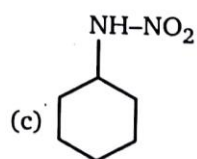
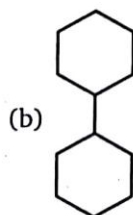
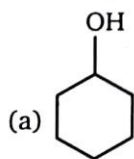
10 AMINES

LEVEL-1

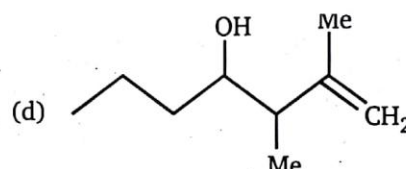
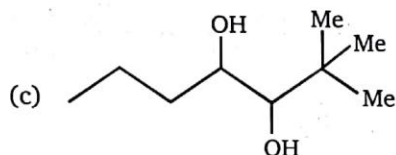
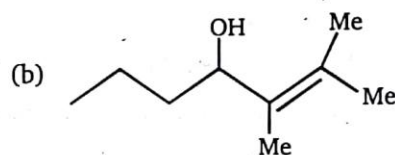
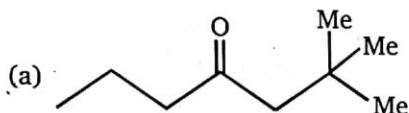
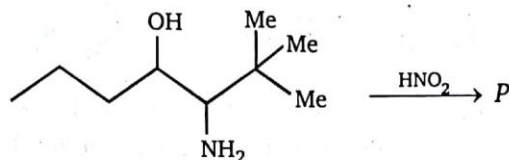
1. In which of the following reaction cyanide will be obtained as a major product ?



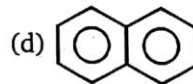
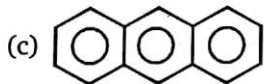
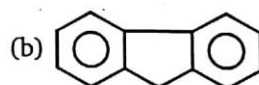
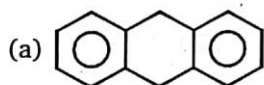
Product (A) is :



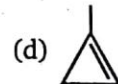
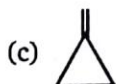
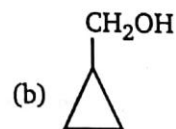
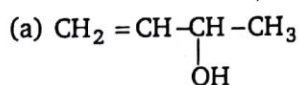
3. Which of the following alkene cannot be prepared by de-amination of $n\text{-Bu}-\text{NH}_2$ with NaNO_2/HCl ?
 (a) 1-butene (b) *cis*-2-butene (c) *trans*-2-butene (d) Iso-butene
4. Predict the major product *P* in the following reaction.



5. Product of this reaction is :

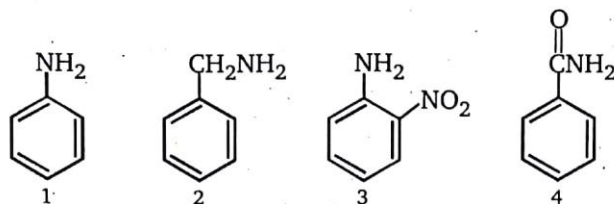


6. + $\text{CH}_2=\text{CH}-\text{CH}_2-\text{CH}_2-\text{OH}$
- A will be :



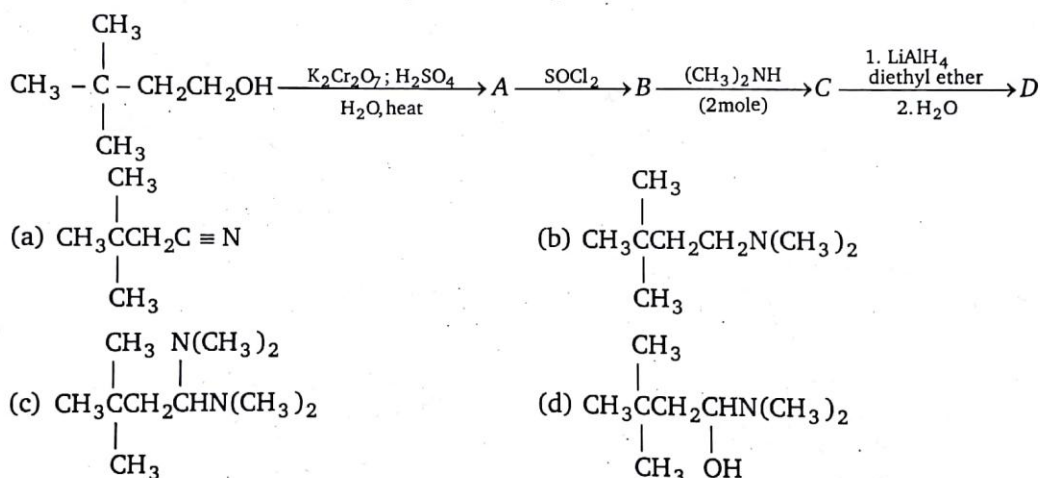
7. Which of the following isomers of $\text{C}_8\text{H}_9\text{NO}$ is the weakest base ?
 (a) *o*-Aminoacetophenone (b) *p*-Aminoacetophenone
 (c) *m*-Aminoacetophenone (d) Acetanilide

8. Rank the following compounds in order of increasing basic strength. (weakest $\rightarrow$ strongest) :

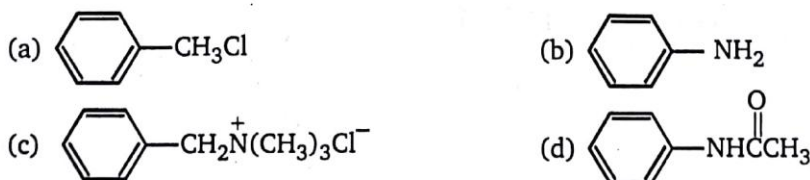
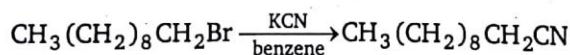


- (a) $4 < 2 < 1 < 3$ (b) $4 < 3 < 1 < 2$ (c) $4 < 1 < 3 < 2$ (d) $2 < 1 < 3 < 4$
9. Which of the following arylamines will not form a diazonium salt on reaction with sodium nitrite in hydrochloric acid ?
- (a) *m*-Ethylaniline (b) *p*-Aminoacetophenone
(c) 4-Chloro-2-nitroaniline (d) *N*-Ethyl-2-methylaniline

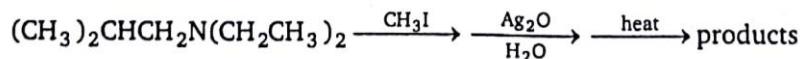
10. Identify product *D* in the following reaction sequence :



11. Which one of the following is best catalyst for the reaction shown below ?

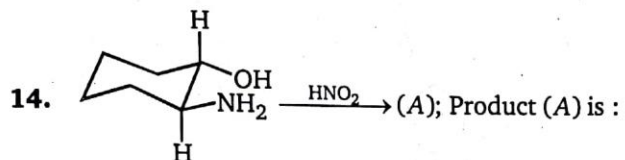
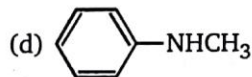
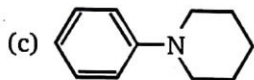
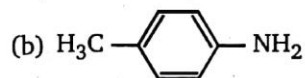
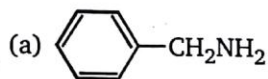


12. The major products obtained from the following sequence of reactions are :



- (a) $(\text{CH}_3)_2\text{CHCH}_2\text{NH}_2 + \text{H}_2\text{C} = \text{CH}_2$ (b) $(\text{CH}_3)_2\text{NCH}_2\text{CH}_3 + \text{H}_2\text{C} = \text{C}(\text{CH}_3)_2$
(c) $(\text{CH}_3)_2\text{CHCH}_2\text{N}^+\text{CH}_2\text{CH}_3 + \text{H}_2\text{C} = \text{CH}_2$ (d) $(\text{CH}_3)_3\text{N}^+\text{CH}_2\text{CH}_3\text{I}^- + \text{H}_2\text{C} = \text{CH}_2$

13. Which amine yields *N*-nitroso amine after treatment with nitrous acid ($\text{NaNO}_2, \text{HCl}$) ?



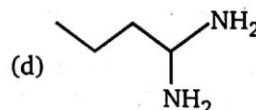
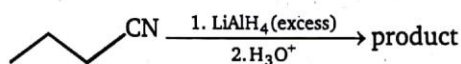
(a) cyclopentane carboxyaldehyde

(b) cyclohexane-1, 2-diol

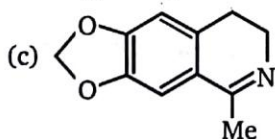
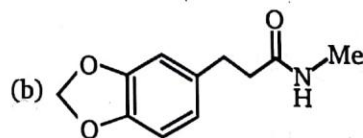
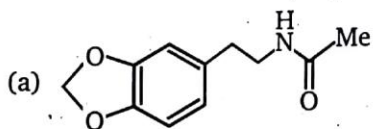
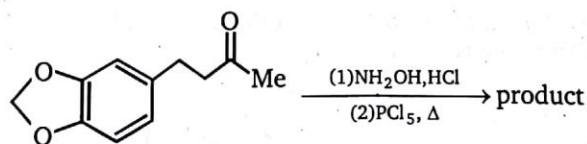
(c) 2-aminocyclohexene

(d) cyclohex-2-enol

15. Choose the appropriate product for this reaction.



16. Which of the following product will be obtained in the given (consider minor product also) Beckmann-type rearrangement ?



(d) all of these

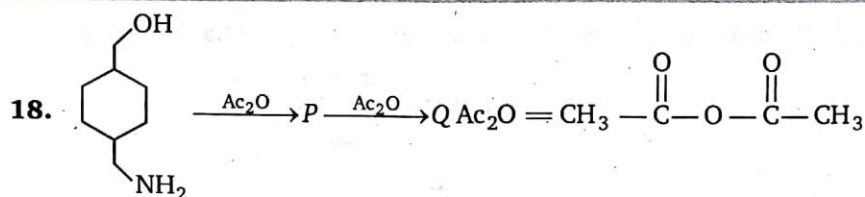
17. Deamination (or) diazotization of *n*-Bu-NH₂ with NaNO_2/HCl gives isomeric butene.

(a) 2

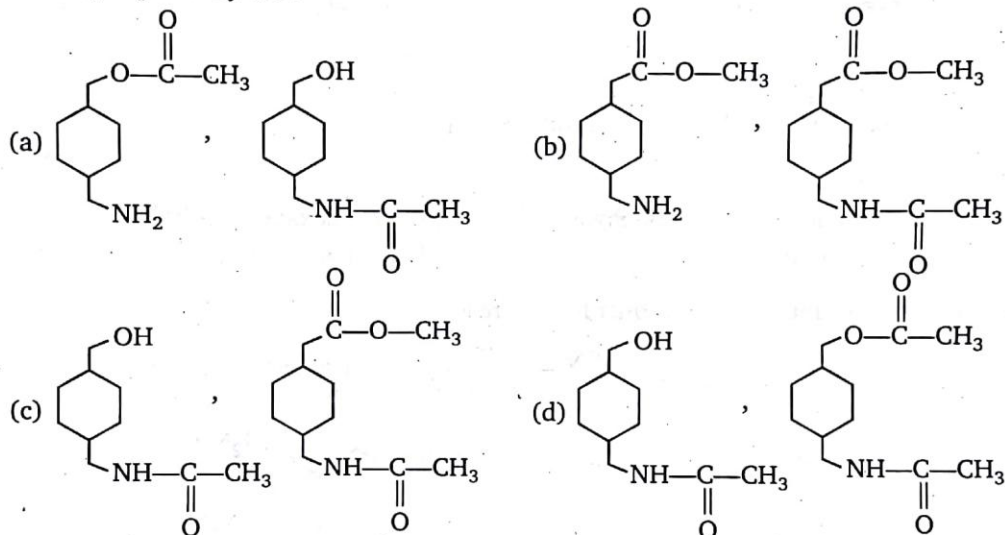
(b) 3

(c) 4

(d) 5



P and Q respectively are :



19. A nitrile X is treated with LiAlH_4 to obtain compound Y ($\text{C}_2\text{H}_7\text{N}$). In a separate reaction X is hydrolyzed in an acid medium to obtain Z. The product obtained after mixing Y and Z will be

- (a) $\text{CH}_3\text{CONHCH}_2\text{CH}_3$ (b) $\text{CH}_3\text{CH}_2\text{CONHCH}_2\text{CH}_3$
 (c) $(\text{CH}_3\text{COO}^-)(\text{CH}_3\text{CH}_2\text{NH}_3^+)$ (d) $(\text{CH}_3\text{CH}_2\text{COO}^-)(\text{CH}_3\text{NH}_2^+)$

20. The compound X ($\text{C}_7\text{H}_9\text{N}$) reacts with benzenesulfonyl chloride to give Y ($\text{C}_{13}\text{H}_{13}\text{NO}_2\text{S}$) which is insoluble in alkali. The compound X is-

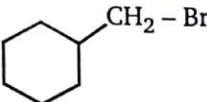
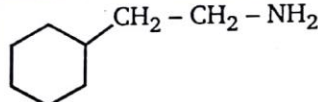
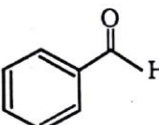
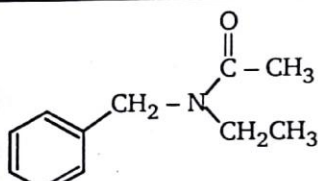
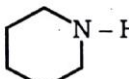
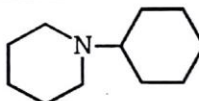
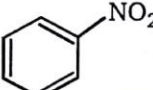
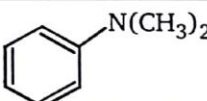
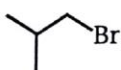
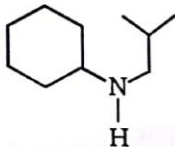


ANSWERS — LEVEL 1

1.	(c)	2.	(a)	3.	(d)	4.	(a)	5.	(b)	6.	(b)	7.	(d)	8.	(b)
9.	(d)	10.	(b)	11.	(c)	12.	(c)	13.	(d)	14.	(a)	15.	(b)	16.	(d)
17.	(b)	18.	(d)	19.	(c)	20.	(a)								

LEVEL-2

1. Five amine syntheses are outlined below. In each reaction box enter a single letter designating the best reagent and conditions selected from the list at the bottom of the page.

A.		First Step Second Step	
B.		First Step Second Step Third Step	
C.		First Step Second Step	
D.		First Step Second Step	
E.		First Step Second Step Third Step Fourth Step	

(a)	(i) LiAlH_4 in ether (ii) H_2O & base	
(b)	$\text{C}_2\text{H}_5\text{NH}_2$ (cat. $\text{H}^{(+)}$)	
(c)	NaCN in alcohol	
(d)	H_2 & Ni catalyst or H_2 & Pd catalyst	
(e)	NaN_3 in alcohol	
(f)	$(\text{CH}_3\text{CO})_2\text{O}$ & pyridine	
(g)	$\text{C}_2\text{H}_5\text{Br}$	

(h)	 , $\text{H}^{\oplus}$	
(i)	$2\text{CH}_3\text{I}$ & pyridine	
(j)	KOH in H_2O	

ANSWERS — LEVEL 2

1. A – c, a or c, d; B – b, d, f; C – h, d; D – d, i or a, i; E – e, a, h, a