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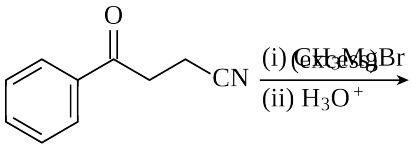
NEET ALDEHYDES, KETONES AND CARBOXYLIC ACIDS — NUCLEOPHILIC ADDITION REACTIONS OF ALDEHYDES AND KETONES — PYQS

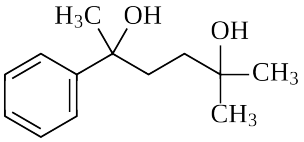
Max. Marks: 68 **Questions:** 17

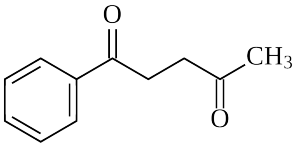
Section A (MCQ) — 17 questions

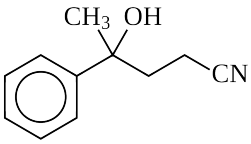
Q.1 The major product of the following reaction is

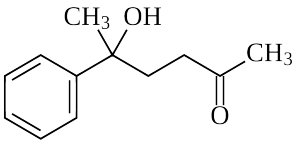
[NEET (UG) 2025]



(1) 

(2) 

(3) 

(4) 

Scan or tap for the full solution

Q.2 Match **List-I** with **List-II**.

List-I (Products formed)		List-II (Reaction of carbonyl compound with)	
a.	Cyanohydrin	i.	NH_2OH
b.	Acetal	ii.	RNH_2
c.	Schiff's base	iii.	Alcohol
d.	Oxime	iv.	HCN

Choose the correct answer from the options given below [NEET (UG) 2022]

(1) (a) - (iii), (b) - (iv), (c) - (ii), (d) - (i)
(2) (a) - (ii), (b) - (iii), (c) - (iv), (d) - (i)
(3) (a) - (i), (b) - (iii), (c) - (ii), (d) - (iv)
(4) (a) - (iv), (b) - (iii), (c) - (ii), (d) - (i)

Scan or tap for the full solution

Q.3 Which of the following reactions is not an example for nucleophilic addition-elimination reaction?

[NEET (UG) 2022 (Phase 2)]

(1) $CH_3CHO + NH_3 \rightleftharpoons CH_3CH{=}NH + H_2O$

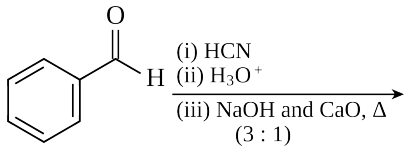
(2) $CH_3CHO + NaHSO_3 \rightleftharpoons CH_3{-}\underset{H}{\overset{OH}{C}}{-}SO_3Na$

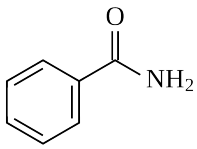
(3) $CH_3CHO + NH_2OH \rightleftharpoons CH_3CH{=}N{-}OH + H_2O$

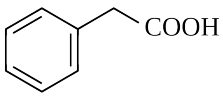
(4) $CH_3CHO + C_6H_5NHNH_2 \rightleftharpoons CH_3CH{=}N{-}NHC_6H_5 + H_2O$

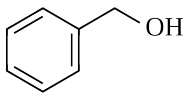
Scan or tap for the full solution

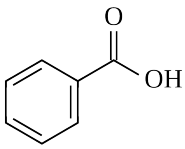
Q.4 The product formed from the following reaction sequence is [NEET (UG) 2022 (Phase 2)]



(1) 

(2) 

(3) 

(4) 

Scan or tap for the full solution

Q.5 Which of the following reagents would distinguish cis-cyclopentane-1,2-diol from the trans-isomer?

[NEET 2016 (Phase 1)]

(1) MnO_2
(2) Aluminium isopropoxide
(3) Acetone
(4) Ozone

Scan or tap for the full solution

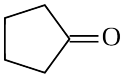
Q.6 The product formed by the reaction of an aldehyde with a primary amine is [NEET 2016 (Phase 1)]
(1) carboxylic acid (2) aromatic acid
(3) Schiff's base (4) ketone

Scan or tap for the full solution

Q.7 Reaction of a carbonyl compound with one of the following reagents involves nucleophilic addition followed by elimination of water. The reagent is [AIPMT 2015]
(1) hydrazine in presence of feebly acidic solution
(2) hydrocyanic acid
(3) sodium hydrogen sulphate
(4) a Grignard reagent.

Scan or tap for the full solution

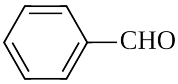
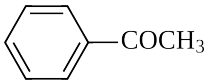
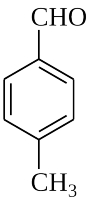
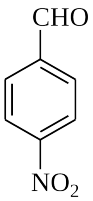
Q.8 Treatment of cyclopentanone with methyl lithium gives which of the following species ? [AIPMT 2015 (Cancelled)]



(1) Cyclopentanonyl radical
(2) Cyclopentanonyl biradical
(3) Cyclopentanonyl anion
(4) Cyclopentanonyl cation

Scan or tap for the full solution

Q.9 Which one is most reactive towards nucleophilic addition reaction? [AIPMT 2014]

(1) 
(2) 
(3) 
(4) 

Scan or tap for the full solution

Q.10 Consider the reaction :
$RCHO + NH_2NH_2 \longrightarrow RCH = N - NH_2$
What sort of reaction is it? [AIPMT 2012 (Mains)]
(1) Electrophilic addition-elimination reaction
(2) Free radical addition-elimination reaction
(3) Electrophilic substitution-elimination reaction
(4) Nucleophilic addition-elimination reaction

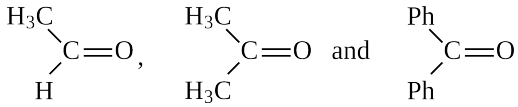
Scan or tap for the full solution

Q.11 Acetone is treated with excess of ethanol in the presence of hydrochloric acid. The product obtained is [AIPMT 2012 (Prelims)]

(1) $CH_3CH_2CH_2-\overset{\overset{O}{\|}}{C}-CH_3$
(2) $CH_3CH_2CH_2-\overset{\overset{O}{\|}}{C}-CH_2CH_2CH_3$
(3) $(CH_3)_2C(OH)(OC_2H_5)$
(4) $(CH_3)_2C(OC_2H_5)_2$

Scan or tap for the full solution

Q.12 The order of reactivity of phenyl magnesium bromide (PhMgBr) with the following compounds: [AIPMT 2011 (Mains)]



I II III

(1) III > II > I (2) II > I > III
(3) I > III > II (4) I > II > III

Scan or tap for the full solution

Q.13 A carbonyl compound reacts with hydrogen cyanide to form cyanohydrin which on hydrolysis forms a racemic mixture of α-hydroxy acid. The carbonyl compound is [AIPMT 2006]
(1) formaldehyde (2) acetaldehyde
(3) acetone (4) diethyl ketone

Scan or tap for the full solution

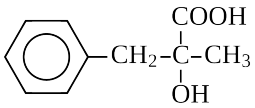
Q.14 Nucleophilic addition reaction will be most favoured in [AIPMT 2006]
(1) CH_3CHO
(2) $CH_3-CH_2-CH_2-\overset{\overset{O}{\|}}{C}-CH_3$
(3) $(CH_3)_2C=O$
(4) CH_3CH_2CHO

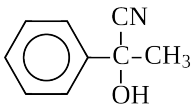
Scan or tap for the full solution

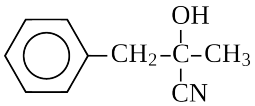
Q.15 In a set of reactions acetic acid yielded a product D.

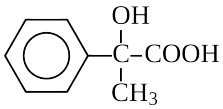
$$CH_3COOH \xrightarrow{SOCl_2} A \xrightarrow[\text{anhy. } AlCl_3]{\text{benzene}} B \xrightarrow{HCN} C \xrightarrow{HOH} D$$

The structure of D would be [AIPMT 2005]

(1) 

(2) 

(3) 

(4) 

Scan or tap for the full solution

Q.16 A and B in the following reactions are : [AIPMT 2003]

$$R-\underset{\underset{O}{\|}}{C}-R' \xrightarrow[KCN]{HCN} A \xrightarrow{B} R-C(OH)(CH_2NH_2)R'$$

(1) $A = RR'C(OH)COOH$, $B = NH_3$

(2) $A = RR'C(CN)OH$, $B = H_3O^+$

(3) A = RR'CHCN, B = NaOH

(4) $A = RR'C(CN)OH$, $B = LiAlH_4$

Scan or tap for the full solution

Q.17 First product of the reaction between RCHO and NH_2NH_2 is [AIPMT 2000]

(1) $RCH{=}NNH_2$ (2) RCH=NH

(3) RCH_2NH_2 (4) $RCON_3$

Scan or tap for the full solution

ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11
Ans.	**4**	**4**	**2**	**3**	**3**	**3**	**1**	**3**	**4**	**4**	**4**
Ques.	12	13	14	15	16	17					
Ans.	**4**	**2**	**1**	**4**	**4**	**1**					