Exercise-1

ONLY ONE OPTION CORRECT TYPE

Section (A) : Grignard Reagent





10. Propanoyl chloride is subjected to reduction with H_2 in boiling xylene in the presence of Pd supported over BaSO₄. The product formed is



(4) ii, iii and iv

- (4) A solution of $K_2Cr_2O_7/H_2SO_4$ in aqueous ethanol
- 9. Secondary alcohols on heating with reduced copper at 300°C give
 (1) Alkenes
 (2) Aldehydes
 (3) Ketones
 (4) tert-alcohols
- **10.**Which of the following,
(i) R -CO -CO R(ii) R CO CHOH R
(iii) $R CHOH CH_2 CHOH R$
(iv) R CHOH CHOH R
Will be oxidised by HIO_4 ?
(1) i, ii and iii(2) i, iii and iv(3) i, ii and iv(4)
- 11. $\begin{array}{c} CH_2 OH \\ | \\ CH_2 OH \end{array} \xrightarrow{HIO_4} \text{product obtained in the above reaction} \\ CHO \\ (1) 2HCHO \\ (2) CHO \\ (3) 2HCOOH \\ (4) COOH \end{array}$
- **12.** Which of the following do not give glyoxal on ozonolysis followed by reaction with Zn and H_2O ? (1) Benzene (2) HC = CH (3) Toluene (4) Ethene

Exercise-2

ONLY ONE OPTION CORRECT TYPE

- 1. What is the function of diethyl ether in the preparation of grignard reagent ?
 - (1) To act as a catalyst
 - (2) To act as a electrophile
 - (3) To provide lone pair of electrons for coordination
 - (4) To act as an acid
- 2. Which of the following functional group produced CH_4 gas by the reaction of compound (I) with CH_3MgBr ?

$$HO \xrightarrow{OH} CH_{3}$$

$$HO \xrightarrow{HO} CH_{3}$$

$$HO \xrightarrow{HO} CH_{3}$$

$$(I)$$

$$(1) OH$$

$$(2) COOH$$

$$(3) SO_{3}H$$

$$(4) All of these$$

$$CH_{2} - OH$$

$$CH_{3} - C - CH_{2} - C - OEt$$

$$H = H$$

$$CH_{3} - C - CH_{2} - C - OEt$$

$$H = H$$

$$U = H$$

$$U = H$$

$$U = H$$

Above compound contains four functional group the rate of reaction with RMg-X will be : (1) I > III > II > IV (2) I > II > III > IV (3) IV > I > II > III (4) I > IV > III > II

- 4. n-Propyl alcohol is obtained on hydrolysis of the adduct obtained by the reaction of
 - (1) EtMgX and HCHO

3.

(2) MeMgX and
$$CH_3-C-CH_3$$

||
O

(3) EtMgX and O₂ (4) MeMgX and CH₃CHO 5. Which of the following reactions leads to formation of 2-propanol ? (1) $CH_3CH_2MgI + HCHO \longrightarrow Adduct \xrightarrow{H_3O^{\oplus}}$ (2) $CH_3MgBr + CH_3CHO \longrightarrow Adduct \xrightarrow{H_3O^{\oplus}}$ (3) $CH_3MgBr + CH_2-CH_2 \longrightarrow Adduct \xrightarrow{H_3O^{\oplus}}$ (4) None of these $BrCH_2CH_2CH_2Br + Mg \longrightarrow Et_2O$ 6. The reaction, produces mainly. (2) BrMgCH₂CH₂CH₂MgBr (1) CH₃CH₂CH₃ (4) $CH_3CH = CH_2$ (3) $\overset{\widetilde{I}}{=} C - CI \longrightarrow [X] \xrightarrow{Zn-Hg/HCI} [Y]$ $Ph - MgBr + (CH_3)_2 - CH$ 7. 1 mole Identify strucutre of [Y]. (1) $Ph - CH_2 - CH - CH_3$ (2) $Ph - CH - CH_2 - CH_3$ L CH3 ĊΗ₃ (3) Ph - C - CH₃ | | CH₃ $-CH_2 - CH_2 - CH_3$ $\xrightarrow{\mathsf{PBr}_3} \mathsf{C}$ 8. Identify C (1) (3) $-CH_3 \xrightarrow{(i) CH_3MgBr}{(ii) H_3O^{+}} ?$ Ph–C 9. The product is : (1) $Ph-CH_2-CH_3$ (2) $Ph-C-CH_3$ (3) Ph–C–CH₃ I OH 10. The relative rates of catalytic hydrogenation is in the order of -(1) $CH_2 = CH_2 > RCH = CH_2 > RCH = CHR > R_2C = CHR$ (2) $R_2C = CHR > RCH = CHR > RCH = CH_2 > CH_2 = CH_2$

- (3) RCH = CHR > R_2C = CHR > RCH = CH_2 > CH_2 = CH_2 (4) R_2C = CHR > CH_2 = CH_2 > RCH = CHR > RCH = CH_2
- **11.** $C_{6}H_{12}$ (A) has two types of alkenes that can be reduced to one type of $C_{6}H_{14}$ (B). B is:







30. An organic compound on reaction with O₃ followed by Zn and H₂O gives CH₃COCH₂CH₂COCH₃ as one of the product. The structures is/are :







	PART - II : AIIMS QUEST	ION (PREVIOUS	YEARS)
1.	Ethylene oxide when treated with Grignard reac (1) Secondary alcohol (2) Tertiary alcohol	gent yield : (3) Cyclopropyl alcohol	[AIIMS 2007, AIPMT 2006] (4) Primary alcohol
2.	The hydrocarbon which does not decolourise precipitate with ammonical silver nitrate is : (1) benzene (2) acetylene	alkaline KMnO₄ solutio (3) propyne	n and also does not give any [AIIMS 2007] (4) 1-butyne
3.	$CH_{3} - CH_{2}C \equiv N \xrightarrow{x} CH_{2}CH_{2}CHO$ The compound X is : (1) SnCl ₂ / HCl / H ₂ O, boil (3) LiAlH ₄ / ether	(2) H ₂ / Pd – BaSO ₄ (4) NaBH ₄ / ether / H ₃ O	[AIIMS 2008]
4.	An alkyl chloride 'A' on reaction with magnesiur methylbutane. Give the possible strucuture of 'A (1) $(CH_3)_2C(CI)CH_2CH_3$ (3) $CH_3CH_2CH_2CH_2CH_2X$	m in dry ether followed by A' (2) (CH ₃) ₂ CHCH ₂ CH ₂ CI (4) Both (1) and (2)	r treatment with ethanol gave 2- [AIIMS 2009]
5.	Which of the following products is formed when product so obtained is subjected to acid hydroly (1) A secondary alcohol (3) Phenol	a benzaldehyde is treated /sis ? (2) A primary alcohol (4) tert - Butyl alcohol	with CH ₃ MgBr and the addition [AIIMS 2013]
6.	Which of the following gives primary amine on r (1) $CH_3CH_2NO_2$ (2) $CH_3CH_2-O-N=O$	reduction ? (3) $C_6H_5 N = NC_6H_5$	[AIIMS 2013] (4) CH ₃ CH ₂ NC
7.	In the following reaction		[AIIMS 2015]
8.	CH ₃ CHO+NH ₂ .NH ₂ \rightarrow A \xrightarrow{B} CH ₃ CH ₃ +N ₂ Identify A and B. (1) CH ₃ CH=NNH ₂ and C ₂ H ₅ ONa (3) CH ₃ -NH-NH-CH ₃ and C ₂ H ₅ OH	(2) $CH_3CH_2-NH_2$ and C_2 (4) $CH_3CH_2NH_2$ and C_2H_2	₂H₅ONa H₅OH [AIIMS 2017]
	(1) СНО	(2) COCH ₃	
	(3)	(4) None of these	
9.	CH ₃ -CHO $\xrightarrow{(i)CH_3MgBr}_{(ii)H_2O}$ (a) $\xrightarrow{H_2SO_4,\Delta}$ (b) Hyd	droboration oxidation (c)	[AIIMS 2017]
	(1) Identical (2) Positional isomers	(3) Functional isomers	(4) Optical isomers



(4) If both assertion and reason are false.

PART - III : JEE (MAIN) / AIEEE PROBLEMS (PREVIOUS YEARS)

1.	But-1-ene may be conv (1) Zn - HCl	erted to butane by reacti (2) Sn - HCl	on with (3) Zn - Hg	(4) Pd/H ₂ .	[AIEEE 2003]
2.	Which one of the follo hydrocarbon? (1) Ethyl acetate	owing is reduced with : (2) Butan-2-one	zinc and hydrochloric a (3) Acetamide	acid to give the (4) Acetic acid	e corresponding [AIEEE-2004]
3.	The best reagent to cor (1) Pyridinium chloro-ch (3) Acidic dichromate	nvert pent-3-en-2-ol into j nromate	pent-3-ene-2-one is (2) Chromic anhydride (4) Acidic permanganat	in glacial acetic te	[AIEEE-2005] acid
4.	In the following sequen $CH_3CH=CHCH_3 - O_3$	ce of reactions, the alker $A \xrightarrow{H_2O}{Z_n} B$, The comp	ne affords the compound bound B is :	'B' [AIE I	EE-2008, 3/105]
	(1) CH ₃ COCH ₃	(2) $CH_3CH_2COCH_3$	(3) CH ₃ CHO	(4) CH ₃ CH ₂ CH	Ю
5.	Ozonolysis of an orga presence of : (1) two ethylenic double (3) an isopropyl group	nic compound gives for bonds	maldehyde as one of tl (2) a vinyl group (4) an acetylenic triple l	he products. Th bond	nis confirms the [AIEEE-2011]
6.	In the given transforma CH=CHCC	tion, which the following $DCH_3 \xrightarrow{\text{Reagent}} HO$	is the most appropriate r CH=CHCH ₂ CH ₃	eagent ?	[AIEEE-2012]
	(1) NH_2NH_2 , OH	(2) Zn–Hg/HCl	(3) Na, Liq, NH ₃	(4) NaBH ₄	
7.	The most suitable reage (1) KMnO ₄ (3) CrO ₃	ent for the conversion of	R–CH ₂ –OH → R–CHO i (2) K ₂ Cr ₂ O ₇ (4) PCC (Pyridinium Ch	is : [Ji	EE-MAIN-2014]
8.	The major product obta	ined in the following read	ction is :	[JE	E-MAIN-2017]
	(1) (1) CHO	(2) СНО	(3) CHO CHO	(4) (4) (4) (4) (4) (4) (4) (4) (4) (4)	`СНО ОН
9.	The trans-alkenes are f (1) Na/liq. NH ₃	ormed by the reduction c (2) Sn - HCl	of alkynes with : (3) H ₂ –Pd/C, BaSO4	[JI (4) NaBH4	EE-MAIN-2018]
10.	The major product of for $R-C\equiv N \xrightarrow{(1)AIH(i-Bu)_2}{(2)H_2O}$?	llowing reaction is :		[J]	EE-MAIN-2019]
	(1) RCONH ₂	(2) RCH ₂ NH ₂	(3) RCHO	(4) RCOOH	

11. The major product 'X' formed in the following reaction is :

[JEE-MAIN-2019]



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12. The major product obtained in the following reaction is;







13. The major product of the following reaction is:



14. The major product of the following reaction is:







NH





[JEE-MAIN-2019]

[JEE-MAIN-2019]



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Answers

						EXER	CISE	- 1					
SEC	FION (A))											
1.	(2)	2.	(3)	3.	(1)	4.	(3)	5.	(1)	6.	(1)	7.	(4)
8.	(3)												
SEC	FION (B))											
1.	(2)	2.	(4)	3.	(4)	4.	(2)	5.	(1)	6.	(2)	7.	(4)
8.	(2)	9.	(4)	10.	(2)	11.	(1)	12.	(2)	13.	(1)		
SEC)											
1.	(1)	2.	(2)	3.	(2)	4.	(3)	5.	(1)	6.	(4)	7.	(3)
8.	(3)	9.	(3)	10.	(3)	11.	(1)	12.	(4)				
						EXER	CISE	- 2					
1.	(3)	2.	(4)	3.	(2)	4.	(1)	5.	(2)	6.	(3)	7.	(1)
8.	(1)	9.	(4)	10.	(1)	11.	(2)	12.	(2)	13.	(3)	14.	(3)
15.	(4)	16.	(2)	17.	(4)	18.	(1)	19.	(3)	20.	(2)	21.	(3)
22.	(1)	23.	(2)	24.	(1)	25.	(1)	26.	(4)	27.	(1)	28.	(1)
29.	(3)	30.	(4)	31.	(4)	32.	(2)	33.	(1)	34.	(3)	35.	(2)
36.	(3)												
						EXER	CISE	- 3					
						P/	ART-I						
1.	(1)	2.	(2)	3.	(3)	4.	(4)	5.	(4)	6.	(1)	7.	(3)
8.	(1)	9.	(3)	10.	(2)	11.	(1)	12.	(3)	13.	(3)	14.	(3)
						DA							
1.	(4)	2.	(1)	3.	(1)	4.	(4)	5.	(1)	6.	(1)	7.	(1)
8.	(3)	9.	(2)	10.	(2)	11.	(2)	12.	(2)	13.	(4)	14.	(3)
15.	(2)		()		()		()						()
	(-)					PA	RT-III						
1.	(4)	2.	(2)	3.	(1)	4.	(3)	5.	(2)	6.	(1)	7.	(4)
8.	(1)	9.	(1)	10.	(3)	11.	(3)	12.	(4)	13.	(2)	14.	(3)
15.	(1)	16.	(3)	17.	(1)	18.	(3)	19.	(3)	20.	(1)		