विध्न विचारत भीरु जन, नहीं आरम्भे काम, विपति देख छोड़े तुरंत मध्यम मन कर श्याम।
पुरुष सिंह संकल्प कर, सहते विपति अनेक, 'बना' न छोड़े ध्येय को, रघुबर राखे टेक।।

रिवेतः मानव धर्म पणेता
सनुगृह श्री रणछोड़वासजी महाराज

## **Subject: CHEMISTRY**

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## **ORGANIC CHEMISTRY**



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# DEEPAWALI ASSIGNMENT



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Q.6

Q.1  $\xrightarrow{\text{H}^+}$  (A)

(A) is

Q.2 Which of the following alcohols cannot be prepared from an alkene?

$$(A) \hspace{1cm} OH \hspace{1cm} (C) \hspace{1cm} OH \hspace{1cm} (D) \hspace{1cm} OH$$

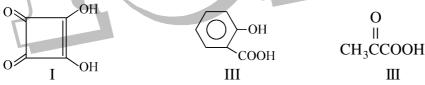
Q.3 (R) - 2-Bromooctane  $\xrightarrow{\text{(i)Mg} \atop \text{(ii)CO}_2} X$ 

X is

(A) 
$$CH_3$$
 \* COOH (B)  $HOOC$  \*  $CH_3$  \*  $CH_3$  (C) A and B both (D) None of these

- Q.4 Identify the true statement
  - (A) Alkyl group exhibit +I effect when directly attached with  $\pi$  system
  - (B) Dipole of acetone is more than acetaldehyde
  - (C) Boiling point of acetone is more than acetaldehyde
  - (D) All the above

Q.5 Consider the following compound



Which of the above compounds reacts with NaHCO<sub>3</sub> giving CO<sub>2</sub>

- (A) I, II and III
- (B) I and III
- (C) II and III
- (D) I and II

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Which one of the following compounds undergoes bromination of its aromatic ring (electrophilic aromatic substitution) at the *fastest* rate?

Q.7 
$$COOD \xrightarrow{COOD} \xrightarrow{\Delta}$$
 product is

(D) None

Q.9 Enolisation is maximum in case of



(D) 
$$C_6H_5CC_6H_5$$

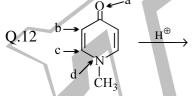
Q.10 Maximum hydration takes place of

$$(B) \ CH_3CCH_3$$

(D) 
$$C_6H_5CC_6H_5$$

Q.11  $CH_2 = CH - CH = CH_2$ ; the bond between  $C_2 - C_3$  is shorter than single bond because:

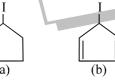
- (A) + I effect
- (B) –I effect
- (C) M effect
- (D) hyper conjugation effect



Identify the site, where protonation is favourable.

- (A) a
- (B) b
- (C) c
- (D) d

Q.13



(c)

Rate of abstraction of iodine by  $Ag^{\oplus}\, is$ 

- (A) a>b>c
- (B) b>a>c
- (C) c>a>b
- (D) a>c>b

Q.14 Which one of the following carbocation would you expect to rearrange.



(B) CH<sub>3</sub> €

(C) 
$$Ph - CH_2 - \overset{\bigoplus}{CH} - CH_3$$

$$(D) \bigcirc_{\mathbb{Q}}^{\mathbb{Q}_3}$$

(C) 
$$CH_3MgBr$$
 (excess) +  $CH_3 - C - O - C - CH_3 \longrightarrow H^+$ 

(D) 
$$CH_3MgBr$$
 (excess) +  $Cl-C-O-Et \longrightarrow \xrightarrow{H^+}$ 

Q.16 Which of the following compound can show geometrical & optical isomerism.

$$(A) \qquad (B) \qquad (C) \qquad (D) \qquad (D)$$

Q.17 Correct order of dipole moment is

The major product is:

$$(A) \xrightarrow{OH} OH OH OH OH OH OH OH OH$$

$$(C) \xrightarrow{Me} OH OH OH OH$$

,ОН <u>н</u>+ Q.19

The above reaction involves the migration of

- (A) hydride (B) methanide
  - (C) C-C bond
- (D) None

- (A) ClCOCH<sub>2</sub> CH<sub>2</sub> COCl
- (C) CH<sub>3</sub> COCl

- (B) CH<sub>3</sub>COOCOCH<sub>3</sub>
- (D) ClCO COCl

Q.21 Which of the following most accurately describes the first step in the reaction of hydrogen chloride with 1-butene?

- $(A) \stackrel{\bullet}{\text{Cl-H}} \longrightarrow \stackrel{\bullet}{\checkmark}$
- + Cl·
- $(B) \stackrel{\longleftarrow}{Cl} \stackrel{\longleftarrow}{H} \stackrel{\longleftarrow}{\longrightarrow} \stackrel{+}{\longrightarrow}$
- Cl
- $(C) \stackrel{\longleftarrow}{Cl} \stackrel{\longleftarrow}{H} \stackrel{\longleftarrow}{\longrightarrow} + \stackrel{\longleftarrow}{\longleftarrow}$
- + Cl<sup>-</sup>
- $(D) \stackrel{\longleftarrow}{H} \stackrel{\longleftarrow}{Cl} \longrightarrow Cl \stackrel{\top}{\longleftarrow}$
- + H<sup>-</sup>

Q.22 Which of the following statements is true?

- (A) CH<sub>3</sub>CH<sub>2</sub>S<sup>-</sup> is both a stronger base and more nucleophilic than CH<sub>3</sub>CH<sub>2</sub>O<sup>-</sup>.
- (B)  $CH_3CH_2S^-$  is a stronger base but is less nucleophilic than  $CH_3CH_2O^-$ .
- (C) CH<sub>3</sub>CH<sub>2</sub>S<sup>-</sup> is a weaker base but is more nucleophilic than CH<sub>3</sub>CH<sub>2</sub>O<sup>-</sup>.
- (D) CH<sub>3</sub>CH<sub>2</sub>S<sup>-</sup> is both a weaker base and less nucleophilic than CH<sub>3</sub>CH<sub>2</sub>O<sup>-</sup>.

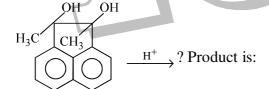
Q.23 Dehydration of the alcohols



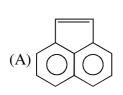
will be in order

(A) III > II > IV > I (B) I > II > III > IV (C) IV > II > III > I (D) II > IV > I > III

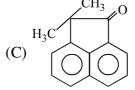
CH<sub>3</sub>

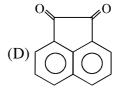


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(B)



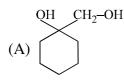


Q.25 HO-C-C-C-Cl  $\xrightarrow{\text{OH}^-}$  ? Product is:

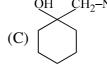
- (B) C-C-C-Cl
- (C)C-C-C-C
- (D) C-C-C-C

Q.26  $\xrightarrow{\text{OH} \quad \text{CH}_2-\text{NH}_2} \xrightarrow{\text{NaNO}_2} A$ 

A is



(B) CH<sub>2</sub>-C



(D)

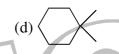
Q.27 Nucleophilic addition of Grignard reagent cannot occur in

$$\begin{array}{ccc} & O & O \\ \parallel & \parallel \\ (B) & CH_3-C-CH_2-C-CH_3 \end{array}$$

$$(D) \bigcirc C - H$$

Q.28 Circle all alkane that give only one alkyl-chloride upon reaction with chlorine and light.





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Q.29 Identify unknown.

(b) 
$$CH_3 \longrightarrow O \longrightarrow MgBr_2$$

(c) 
$$COOEt$$
  $\xrightarrow{(i) CH_3MgBr (excess)}$  Pdt?  $COOEt$ 

$$(d) \xrightarrow{\text{NH}_2} \xrightarrow{\text{HNO}_2} \bigcirc^{\text{C}}$$

$$(e) \underbrace{ \bigcup_{Me}^{O} }_{Me} \xrightarrow{H^{+}}$$

Q.30 Provide a structure for M and a mechanism for its formation. Please show all arrow pushing.

Q.31 
$$O$$
 + HNO<sub>2</sub> + H<sub>2</sub>SO<sub>4</sub>  $O$   $O$ 

(1,2-dione)

Explain the mechanism for this reaction

1,2-cyclohexadione

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- Deamination of  $n\text{-BuNH}_2$  with  $\text{NaNO}_2$  + HCl gives two butanols, three butene & two butylesses two butsets of the second chlorides. Give possible mechanism to these products.
- Q.33 Identify the major and minor products of the following reaction.

- Suggest two ways in which each of the following alcohols might be preapared by using a Grignard Q.34
  - (a) 2-Hexanol, CH<sub>3</sub>CHCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>3</sub> OH
- (b) 2-Phenyl-2-propanol,  $C_6H_5C(CH_3)_2$

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- What combination of ester and Grignard reagent could you use to prepare each of the following Q.35 tertiary alcohols?
  - (a)  $C_6H_5C(CH_2CH_3)$ ,

Q.36 Draw mechanism to the  $r \times n$ 

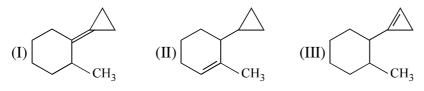
Q.37 Write the correct order of stability of following carbocation:



- Teko Classes, Maths: Suhag R. Kariya (S. Draw the Newmann projection formula of the most stable conformation of 3-hydroxy propanal Q.38 across  $C_2$  and  $C_3$ .
- Q.39 Give mechanism for given reaction:

α-Terpeniol

Draw the structures of stable configuration obtained after acidic hydration of the following unsaturated compounds: (exclude rearranged products)



### ANSWER KEY

МÖ	Q.1	C	Q.2	В	Q.3	С	Q.4	D	Q.5	A	Q.6	В	Q.7	A	
ag.c	Q.8	В	Q.9	В	Q.10	A	Q.11	C	Q.12	A	Q.13	D	Q.14	C	
sBySuh	Q.15	B,C,D	Q.16	A,B	Q.17	A,B,D	Q.18	A	Q.19	A	Q.20	D	Q.21	В	
	Q.22	C	Q.23	C	Q.24	C	Q.25	D	Q.26	D	Q.27	В			
/ath	Q.28	(b), (c), (f)													
s.com & www.N	Q.29	(e) (Me	OH Me	$\longrightarrow $	OH + H Me	e -H	$\longrightarrow \left[\rule{0mm}{2mm}\right]$	OH Me Me	Q.36	Mecha	nnism of	f Tauto	merism		
TekoClasses	Q.38	H	D-H~O C-		1			1	\ <u>5</u>						
ebsite: www.	Q.39	$\begin{array}{c} & & \\ & & \\ & & \\ & & \\ \end{array} \\ \begin{array}{c} & \\ & \\ \end{array} \\ \begin{array}{c} \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \end{array} \\ \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$													
ackage from we	Q.40	(I) (Pair	· / <b>\</b>	OH CH <sub>3</sub> mers)	(II) (Pair		OH CH <sub>3</sub> mers)	(III)		CH <sub>3</sub>					
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Q.29 (e) 
$$\stackrel{+}{\underset{Me}{\longrightarrow}} \stackrel{OH}{\underset{Me}{\longrightarrow}} \stackrel{OH$$

Q.38 
$$H^+$$
  $H^+$   $OH$