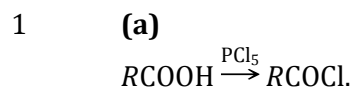
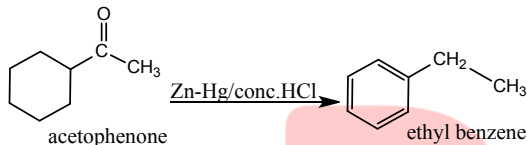


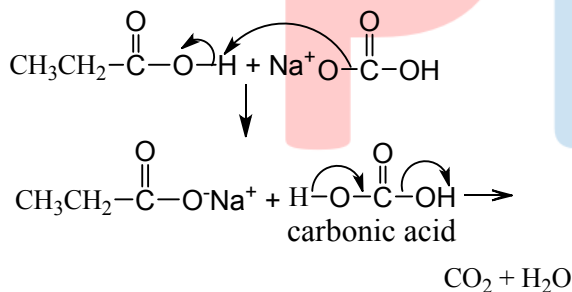
### Topic :- Aldehydes, Ketones & Carboxylic Acids



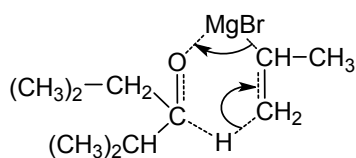
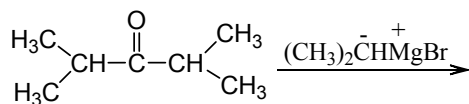
3 (d)  
Clemmensen reduction can be used to convert acetophenone into ethyl benzene as it reduce  $>C=O$  group into  $>CH_2$



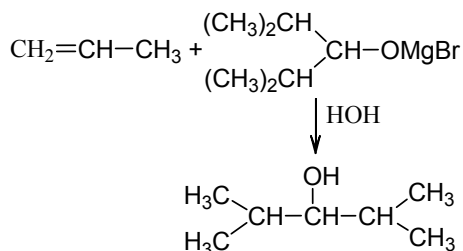
4 (d)  
Carboxylic acids reacts with weaker bases such as bicarbonates producing  $CO_2$ . The  $CO_2$  evolved comes from  $NaHCO_3$ , not from carboxylic group as shown below :



7 (b)  
*Iso*-propyl magnesium bromide reduces di-*iso*-propyl ketone to secondary alcohol. However, only  $-H^+$  ion adds to ketone in spite of bulky alkyl group due to steric hinderance



six membered cyclic transition state



8

**(b)**

In (a) *t*-alcohol, in (c) initially *s*-alcohol converting to ether. In (d) *p*-alcohol.

9

**(b)**

Carbonyl carbon becomes more reactive towards nucleophilic addition depending upon the magnitude of the positive charge on the carbonyl carbon atom. The introduction of negative inductive effect showing group (*-I* effect) increases the reactivity while introduction of alkyl group (*+I* effect) decreases the reactivity. So, large alkyl group decreases the reactivity of  $> \text{C}=\text{O}$ .

11

**(d)**

Unsaturated ketones may be converted to unsaturated acids by sodium hypohalite, *i.e.*, NaOCl, NaOI, etc.

12

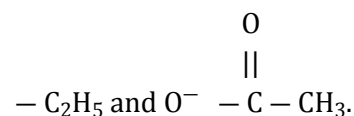
**(a)**

The b.p. are  $\text{CH}_3\text{CONH}_2 > (\text{CH}_3\text{CO})_2\text{O} > \text{CH}_3\text{COOH} > \text{CH}_3\text{COCl}$   
 $222^\circ\text{C} \quad 139^\circ\text{C} \quad 116^\circ\text{C} \quad 52^\circ\text{C}$

13

**(a)**

$\text{Cl}^-$  is the best leaving group being the weakest nucleophile out of  $\text{NH}_2^-$ ,  $\text{Cl}^-$ ,  $\text{O}^-$



14

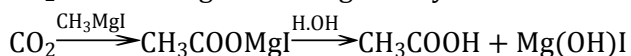
**(a)**

Former reacts with *aq.*  $\text{NaHCO}_3$ .

15

**(b)**

$\text{CO}_2$  adds to Grignard's reagent to yield acids.



18

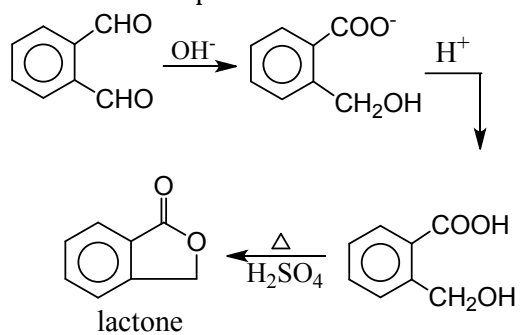
**(b)**

All methyl ketones give iodoform test.

20

**(c)**

This is an example of Cannizaro reaction



PE

<b>ANSWER-KEY</b>										
<b>Q.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
<b>A.</b>	<b>A</b>	<b>D</b>	<b>D</b>	<b>D</b>	<b>B</b>	<b>C</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>C</b>
<b>Q.</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>
<b>A.</b>	<b>D</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>B</b>	<b>B</b>	<b>B</b>	<b>C</b>

**PE**