https://youtu.be/0ioYCtJzqeE - ACCOUNTANCY

https://www.youtube.com/watch?v=sLcozVmIyMg - BUSINESS STUDIES

https://youtu.be/bCWI8IxgEjE - ECONOMICS

SCIENCE DEPARTMENT
https://www.youtube.com/watch?v=o4_Mg4_QPkg ,
https://www.youtube.com/watch?v=arRjl4W9iGA - BIOLOGY

https://youtu.be/5QYVCa8o1YY – CHEMISTRY
https://www.youtube.com/watch?v=OHfxvc51rDQ - PHYSICS

HUMANITIES DEPARTMENT
https://youtu.be/t4oNRPlbQrs - LEGAL STUDIES

https://youtu.be/OLN2t3Tcu7w - PSYCHOLOGY

https://youtu.be/B7R9d-bh0CU - POLITICAL SCIENCE

https://youtu.be/TF5F_xqwg0A - GEOGRAPHY

https://www.youtube.com/watch?v=DoU0YeslOkM – HISTORY

ENGLISH
https://www.youtube.com/watch?v=TesbMy__Uq8
MATHEMATICS
https://youtu.be/EIjJUNoG3sw
COMPUTER DEPARTMENT
https://youtu.be/EaMhhHkhOfU , https://youtu.be/FAXhXI2Gxdc –IP & C.S.

OPTIONAL-II
https://youtu.be/6BPQqKkfQJE - PHYSICAL EDUCATION

https://www.youtube.com/watch?v=xPEQEoTxge8 ,
https://www.youtube.com/watch?v=Xfjy3YgjYC8 - FMM

https://youtu.be/oFsFJOmrIGc - HINDI

https://www.youtube.com/watch?v=zT_NqWs3vCU&t=332s - PAINTING

LITERATURE

1. **Read the extracts given below and answer the questions that follow.**
   "but there was terror in my heart at the overpowering force of the waves."
   (a) Who said the above-mentioned lines and in what context?
   (b) What terror is the author talking about?
   (c) How old was the author when he realised the overpowering force of the waves?

2. **Read the extract given below and answer the questions that follow.**
   "….revived unpleasant memories and stirred childish fears."
   (a) What revived unpleasant memories in the author?
   (b) What is the childish fear the author talks about in the above statement?
   (c) Did the author' childish fear reappear in any form? If yes, how? Describe the incident in one line.

3. **Read the extract given below and answer the questions that follow.**
   "On the way down I planned:"
   (a) Where was the author going?
   (b) What planning does the author talk about?
   (c) Was he successful in executing the plan? If no, how many attempts did he make?

4. **Read the extract given below and answer the questions that follow.**
   "The child will grow up to become the warrior of warriors….."
   (a) Which lesson is the above-mentioned excerpt taken from?
   (b) Who is the author?
   (c) Who is being referred here?
   (d) What does he grow up to be known as?
   (e) Which aspect of his life is a matter of extraordinary interest?
   (f) What is the prophecy made in this lesson?
   (g) When was this prophecy made and by whom?
   (h) What does the character in question do to disapprove the prophecy?
   (i) Does the prophecy remain undisputed?

5. **Read the extract given below and answer the questions that follow.**
   "The operation was successful. The _____ is dead."
   (a) Fill in the blank (The _____ is dead.)
   (b) Who said the above-mentioned dialogue?
   (c) What brought about his death? Explain it in 30 words.
   (d) Was the nature of death foretold? If yes, when and by whom?
   (e) Does the result of the operation resonate with the prediction made in the beginning of the lesson?
   (f) What is your opinion about the result of the operation?

Grammar

Given the link to a video about 8 common grammar mistakes in English. I am sure it will help you write better and correct expression.

Assignment on Logarithmic Differentiation

Differentiate the following function With respect to x

1.If y= $a^x + e^x + x^x + x^a$ find $\frac{dy}{dx}$ at x=a

2. If y =log $(x^x + cosec^2 x)$ find $\frac{dy}{dx}$

3. $\frac{(x^2-1)(2x-1)}{\sqrt{(x-3)(x-1)}}$

4.If $x^m y^n = (x+y)^{m+n}$, then show that $\frac{dy}{dx} = \frac{y}{x}$

5.If If $y = e^{x^x}$ then find $\frac{dy}{dx}$

6.If $x^y = e^{x-y}$ prove that $\frac{dy}{dx} = \frac{\log x}{(1+\log x)^2}$

7.If $e^y = y^x$ then show that $\frac{dy}{dx} = \frac{(\log y)^2}{\log y - 1}$

8. If y= $(\sin x - \cos x)^{\sin x - \cos x}$ find $\frac{dy}{dx}$

9.If $e^x + e^y = e^{x+y}$ then prove that $\frac{dy}{dx} = -e^{y-x}$

10. If $y = x^{x^x}$ find $\frac{dy}{dx}$

Fundamentals of Partnership: Interest on Drawings

1. Where would you record the interest on drawings when capitals are fixed?

2. X, Y and Z are partners sharing profits equally. They have decided that no interest on drawings is to be charged to any partner. But after one year 'Z' wants that interest on drawings should be charged to every partner. State how 'Z' can do this.

3. Drawing of Mr. Vinod during the year was Rs.10,000. Calculate interest on drawings @10% p.a. for the year ended 31st March 2014.

4. Drawings of Mr. Virat during the year was Rs.20,000. Calculate interest on drawings @10% irrespective of time period for the year ended 31st March 2014.

5. Vinod is a partner in a firm. He withdrew the following amounts during the year 2013:
January 31	Rs.6,000
March 31	Rs.4,000
June 30	Rs.8,000
September 30	Rs.3,000
October 31	Rs.5,000

   The interest on drawings is to be charged @6% p.a. Assuming the accounting year closes on December 31 each year, calculte interest on drawings to be debited to Mr. Vinod.

6. Vinod and Mohan were partners in a firm. The partnership agreement provided that interest on drawings was to be charged @12% p.a. Vinod had withdrawn the following amounts during the year ended 31.12.2013:
January 1	Rs.10,000
March 31	Rs.16,000
July 1	Rs.20,000
December 31	Rs.4,000

   Calculate interest on Vinod's Drawings.

BUSINESS STUDIES

Q1. Large scale production done to reduce the average cost of production is the essence of _____concept of Marketing management.
(a) Product;
(b) Selling;
(c) Production;
(d) Marketing

Q2. Saumya decided to start a business of selling dress material from her house. She did various online surveys to find out about the preferences of prospective customers. Based on this, she prepared a detailed analysis of the business. She then made important decisions including deciding about the features, quality, packaging, labelling and branding of the dress material. Identify the element of Marketing Mix discussed above.
(a) Promotion;
(b) Market;
(c) Product;
(d) Place.

Q3. Tomato Ltd., a food delivery service app has recently faced criticism for the tampering of their product, by their delivery boys. Tomato Ltd. decided to put a hologram seal on the food packets in order to protect the contents from spoilage, leakage, pilferage, damage, along with a tag with a safety warning for the consumers to check the seal. Which concept of marketing discussed above is 1 performing the important function of communicating with the potential buyer and promoting the sale.
(a) Branding;
(b) Product designing and development;
(c) Labelling;
(d) Packaging.

Q4. Asserting oneself to ensure that one gets a fair deal, is the right of a consumer. (True/False)

Q5. Sheela went to a free eye camp & got her eyes operated for cataract. The surgery was not done properly, due to which she lost her vision. Where can she file a complaint under consumer protection act?
(a) At District forum
(b) State commission
(c) National Commission
(d) None of above

Q6. Define the term 'Market' from both the aspect of traditional concept and modern concept.

Q7. Classify the types of markets on various basis with examples.

Q8. Explain various functions of marketing.

Q9. Name the 'ESSENCE OF MARKETING'. Also write its 4 conditions.

Q10. Differentiate between 'need' and a 'want' with the help of an example.

ECONOMICS

Q1. Differentiate between :

(a) NDP at FC and GDP at MP
(b) GNP at MP and NNP at FC

Q2. Distinguish between National Income and Domestic Income

Q3. What is meant by a Normal resident of a country ?

Q4. Calculate Net value added at market price of a firm: -

ITEMS	(Rs. IN THOUSAND)
i. Sale	300
ii. Change in stock	-10
iii. Depreciation	20
iv. Net in direct taxes	30
v. Purchase of machinery	100
vi. Purchase of intermediate product.	150

Q5. Calculate GDP at MP : -

ITEMS	(Rs. IN THOUSAND)
i. NNP at FC	9000
ii. factor income from abroad	120
iii. Depreciation	90
iv. factor income to abroad	130
v. IT	180
vi. subsidies	55

Q6. Calculate Gross value added at factor cost of a firm: -

ITEMS	(Rs. IN LAKHS)
i. Value of output	300
ii. Change in stock	30
iii. Depreciation	20
iv. Net in direct taxes	30
v. Intermediate cost	200
vi. Export	15

Q7. Calculate Net value added at factor cost' from the following data: -

ITEMS	(Rs. IN LAKHS)
i. Sale	700
ii. Purchase of machine for installation in the factory	100
iii. Subsidies	50
iv. Change in stock.	(-) 30
v. Purchase of raw material	400
vi. rent	60
vii. Consumption of fixed capital	20

Q8. Calculate Factor income to abroad from the following data: -

ITEMS	(Rs. IN LAKHS)
i. GNP at FC	3750
ii. Subsidies	100

iii. Factor Income from abroad	300
iv. Depreciation	340
v. IT	100
vi. NDP at MP	2800

Q9. Calculate Subsidies from the following data: -

ITEMS	(Rs. IN LAKHS)
i. GDP at FC	7000
ii. IT	40
iii. Factor Income to abroad	400
iv. NNP at MP	3080
v. Factor Income from abroad	500
vi. Depreciation	300

Q10. Calculate Depreciation from the following data: -

ITEMS	(Rs. IN LAKHS)
i. NDP at MP	5000
ii. Subsidies	800
iii. Factor Income from abroad	950
iv. Factor Income to abroad	430
v. IT	740
vi. GNP at FC	2800

BIOLOGY
Assignment Inheritance (2)

1. Make a cross between red flowered RR and white flowered rr flowers of *Antirrhinum* sp. Write the phenotype and genotype of F2 generation.

2. Explain the concept of dominant and recessive alleles in terms of functionality of alleles.

3. What is meant by co-dominance? How is AB blood group and example of it? Explain.

4. Define multiple allelism. Explain multiple allelism with the help of ABO blood groups.

5. What are the criteria for selecting organisms to perform crosses to study the inheritance of a few traits?

6. Differentiate between dominance, co-dominance and incomplete dominance.

7. How is it possible for a child to have a blood group O if the parents have blood groups A and B?

8. Even if a character shows multiple allelism, an individual will only have two alleles for that character. Why?

9. A homozygous tall pea plant with green seeds is crossed with a dwarf pea plant with yellow seeds.

What would be the phenotype and genotype of F1 generation?

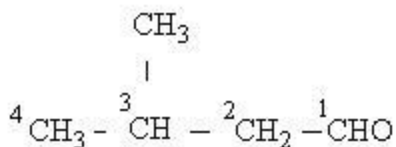Work out the phenotypic ratio of F2 generation with the help of a Punnett square.

10. Define law of independent assortment.

CHEMISTRY
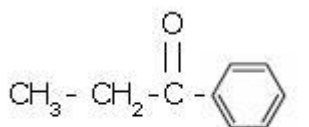
Question 1

Draw the structure of 3-methylbutanal.

Ans.

$$\overset{4}{C}H_3 - \overset{3}{C}H - \overset{2}{C}H_2 - \overset{1}{C}HO$$

with CH_3 branch on C3.

Question 2

Draw the structural formula of 1-phenylpropan-1-one molecule.

Ans.

$$CH_3 - CH_2 - \overset{\overset{O}{\|}}{C} - C_6H_5$$

1-phenylpropan-1-one

Question 3

Write the IUPAC name of

a cyclohexane ring —CHO
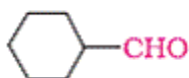
Ans.

The IUPAC name of the compound is cyclohexanecarbaldehyde

Question 4

What happens when propanone is treated with ethyl magnesium bromide and the product is hydrolysed?

Ans.

Propanone on treatment with ethyl magnesium bromide forms an addition compound which upon hydrolysis yields 2-methyl-butan-2-ol.

$$CH_3\text{-}C\text{=}O \ + \ CH_3CH_2MgBr \longrightarrow \underset{CH_2CH_3}{\underset{|}{\overset{OMgBr}{\overset{|}{CH_3\text{-}C\text{-}CH_3}}}} \xrightarrow{H_3O^+} \underset{CH_2CH_3}{\underset{|}{\overset{OH}{\overset{|}{CH_3\text{-}C\text{-}CH_3}}}}$$

(with CH_3 on the carbonyl carbon)

2-Methyl butan-2-ol
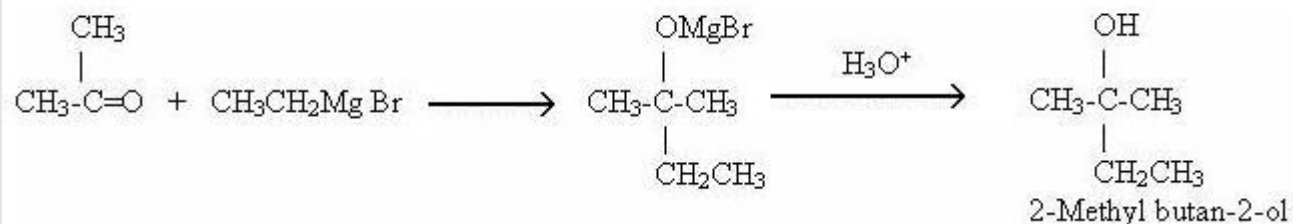
Question 5
Convert Ethanal to Propan-2-ol?
Ans.

$$\underset{\text{Ethanal}}{\overset{\overset{\displaystyle CH_3}{\displaystyle |}}{H\text{-}C\text{=}O}} + CH_3Mg\,Br \xrightarrow{\hspace{2cm}} \underset{\overset{\displaystyle |}{\displaystyle CH_3}}{\overset{\overset{\displaystyle OMgBr}{\displaystyle |}}{H\text{-}C\text{-}CH_3}} \xrightarrow{H_3O^+} \underset{\underset{\text{Propan-2-ol}}{\overset{\displaystyle |}{\displaystyle CH_3}}}{\overset{\overset{\displaystyle OH}{\displaystyle |}}{H\text{-}C\text{-}CH_3}}$$
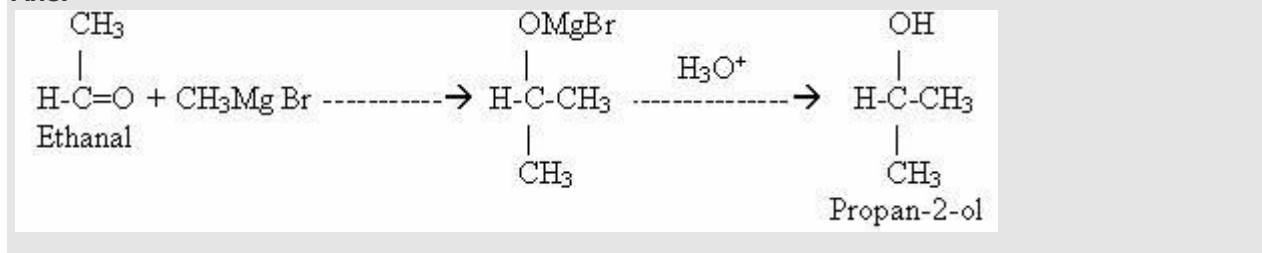
Question 6
Aromatic aldehydes are less reactive than the aliphatic aldehydes. Why?
Ans.
This is due to the reason that the resonance effect (+R effect) of the benzene ring decreases the electron-density on the carbonyl group and thus aromatic aldehydes and ketones are less reactive than the corresponding aldehydes and ketones.

Question 7
What happens when acetone is treated with sodiumbisulphite?
Ans.
Aldehydes when treated with sodiumbisulphite solution add a molecule of sodiumbisulphite to form bisulphate addition products.
There is resonance stabilization of the sulphite group.

$$\underset{\overset{\displaystyle |}{\displaystyle CH_3}}{\overset{\overset{\displaystyle }{\displaystyle }}{CH_3\text{-}C\text{=}O}} + NaHSO_3 \rightleftharpoons \underset{\underset{\text{Acetone bisulphate (addition product)}}{\overset{\displaystyle |}{\displaystyle SO_3Na}}}{\overset{\overset{\displaystyle CH_3}{\displaystyle |}}{CH_3\text{-}C\text{-}OH}}$$
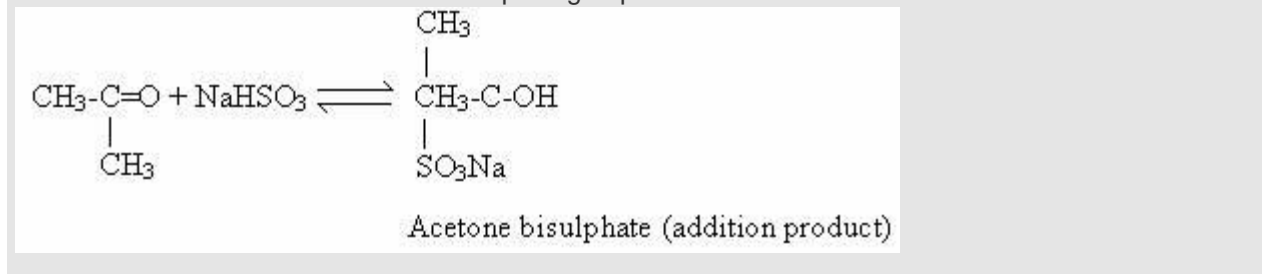
Question 8
Why aldehydes are more reactive than ketones?
Ans.
An aldehyde is generally represented as

$$\underset{R\text{—}C\text{=}O}{\overset{\overset{\displaystyle H}{\displaystyle |}}{}} \quad \text{and ketones as} \quad \underset{R\text{—}C\text{=}O}{\overset{\overset{\displaystyle R}{\displaystyle |}}{}}$$

Both the groups have a polarized carbonyl group.
The presence of H–atom on the carbonyl group of aldehydes makes them much more reactive than ketones.

Question 9
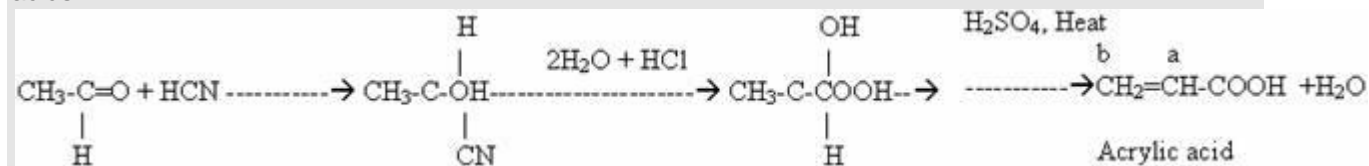**Why carbonyl compounds undergoes nucleophilic addition reactions?**
Ans.
Carbonyl group is a polar quite. Due to greater electronegativity of oxygen than carbon, the oxygen atom of the carbonyl group carries a small negative charge while carbon positively charged. This positively charged carbon atom is readily attacked by the nucleophiles resulting in the formation of an anion by the transference of pi-electron by the C-O double bond to the oxygen atom. The anion thus formed then picks up a proton either from the solvent or reagent to give addition product.

Question 10
How acrylic acid is obtained from acetone?
Ans.
To obtain acrylic acid first acetaldehyde needs to be converted to acetaldehydecyanohydrin which on hydrolysis gives alpha hydroxyl acids which upon subsequent dehydration gives alpha, beta unsaturated acids.

$$CH_3\text{-}C\text{=}O + HCN \xrightarrow{\quad\quad} CH_3\text{-}\underset{CN}{\overset{OH}{C}}\text{-}OH \xrightarrow{2H_2O + HCl} CH_3\text{-}\underset{H}{\overset{OH}{C}}\text{-}COOH \xrightarrow{\quad\quad} \xrightarrow{H_2SO_4,\ Heat} CH_2\text{=}CH\text{-}COOH + H_2O$$

Acrylic acid

Question 11
How can we get alcohol from carbonyl compounds?
Ans.

Aldehydes and ketones add on Grignard reagents to form addition products which upon hydrolysis with water or dil mineral acids give alcohol.

$$\underset{H}{\overset{H}{C}}\text{=}O + RMgX \longrightarrow H\text{-}\underset{OMgX}{\overset{R}{C}}\text{-}H \longrightarrow H\text{-}\underset{OH}{\overset{R\quad X}{C}}\text{-}H + Mg\text{-}OH$$

Formaldehyde   1°alcohol
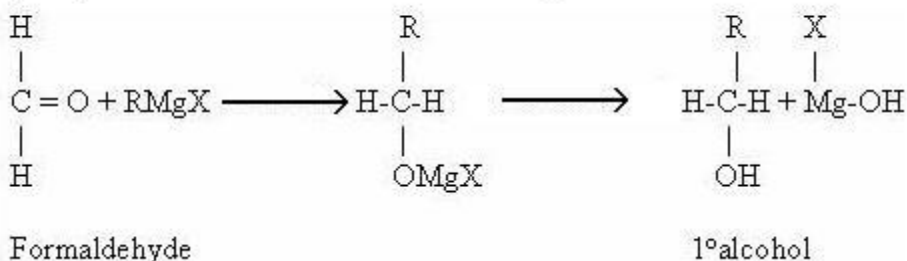
Question 12
What is terephthalic acid?
Ans.
Terephthalic acid is 1,4-Benzenedicarboxylic acid.

Question 13
Give the structure and the IUPAC names of all the carbonyl compounds having formula C_4H_8O.
Ans.
The compounds with formula C_4H_8O are

Butanal :	$CH_3CH_2CH_2CHO$
2-Methyl Propanal	$CH_3\text{-}CH\text{-}CHO$ $\qquad\qquad |$ $\qquad\qquad CH_3$
Methyl Ethyl ketone	$CH_3COCH_2CH_3$

Question 1

a. Write chemical equations of illustrate the following name bearing reactions:

i. Cannizzaro's reaction

ii. Hell- Volhard - Zelinsky reaction

b. Give chemical tests to distinguish between the following pairs of compounds:

i. Propanal and Propanone

ii. Acetophenone and Benzophenone

iii. Phenol and Benzoic acid

or

a. How will you bring about the following conversions?

i. Ethanol to 3 - hydroxybutanal

ii. Benzaldehyde to Benzophenone

b. An organic compound A has the molecular formula $C_8H_{16}O_2$. It gets hydrolysed with dilute sulphuric acid and gives a carboxylic acid B and an alcohol C. Oxidation of C with chromic acid also produced B. C on dehydration reaction gives but-1-ene. Write equations for the reactions involved.

Ans.

(a)(i) Cannizzaro's reaction: Aldehydes which do not have an α-hydrogen atom undergo self oxidation and reduction on treatment with concentrated alkali.
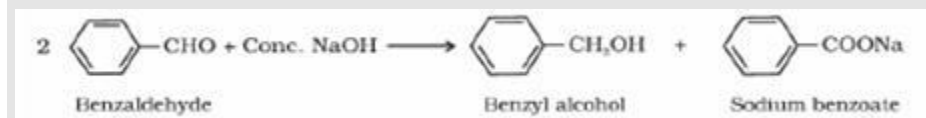
$2 \bigcirc\text{-CHO} + \text{Conc. NaOH} \longrightarrow \bigcirc\text{-CH}_2\text{OH} + \bigcirc\text{-COONa}$

Benzaldehyde   Benzyl alcohol   Sodium benzoate

(i) Hell- Volhard - Zelinsky reaction: Carboxylic acids having an α-hydrogen are halogenated at the α-position on treatment with chlorine or bromine in the presence of small amount of red phosphorus to give α- halocarboxylic aids.

R-CH$_2$-COOH $\xrightarrow[\text{(ii) H}_2\text{O}]{\text{(i) X}_2/\text{Red phosphorus}}$ R-CH-COOH
|
X

X = Cl, Br

α – Halocarboxylic acid
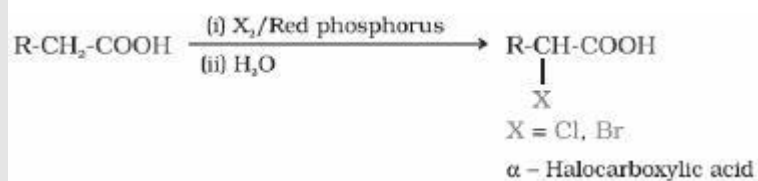
(b) (i) Propanal and propanone

Fehling's test

$$CH_3CH_3CHO + 2Cu^{2+} + 5OH^- \rightarrow CH_3CH_2COO^- + Cu_2O + 3H_2O$$
$$\text{Red ppt}$$
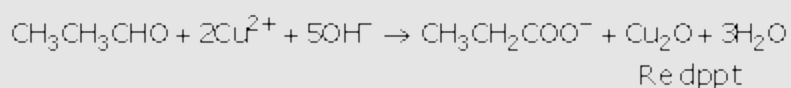
Propanone being a ketone will not give this test.

(ii) Acetophenone and benzophenone

Iodoform test
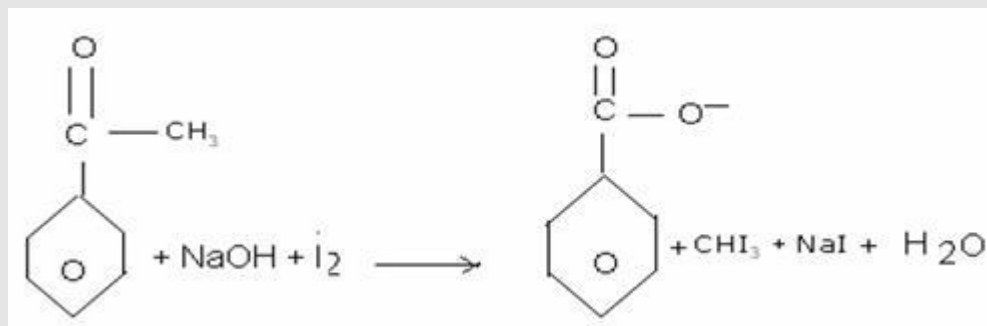
Benzophenone does not give this test.

(iii) Phenol and Benzoic and

FeCl$_3$ test

$$C_6H_5OH + FeCl_3 \rightarrow \left[\left(C_6H_5O^-\right)_6 Fe\right]^{3-} + 3HCl$$
$$\text{Blue violet colour}$$
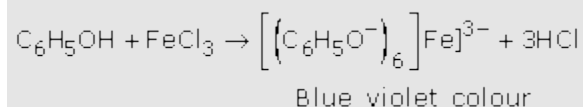
Benzoic acid does not give this test.

Or

(a) (i)

$$\text{CH}_3\text{CH}_2\text{OH} \xrightarrow{\text{Cu / 573 K or PCC}} \text{CH}_3\text{CHO}$$

$$\text{CH}_3\text{CHO} + \text{CH}_3\text{CHO} \underset{}{\overset{\text{dil. NaOH}}{\rightleftharpoons}} \text{CH}_3 - \underset{\underset{\text{OH}}{|}}{\text{CH}} - \text{CH}_2\text{CHO}$$

(ii)

b.

$$CH_3-CH_2-CH_2-\overset{\overset{\displaystyle O}{||}}{C}-O-CH_2-CH_2-CH_2-CH_3 \xrightarrow{\overset{dil}{H_2SO_4}} CH_3-CH_2-CH_2-\overset{\overset{\displaystyle O}{||}}{C}-OH$$

A → B

+

$$CH_3-CH_2-CH_2-CH_2-OH$$

C

$$CH_3-CH_2-CH_2-CH_2-OH \xrightarrow{CrO_3} CH_3-CH_2-CH_2-COOH$$

C → B

$$CH_3-CH_2-CH_2-CH_2-OH \xrightarrow[H_2O]{dehydration} CH_3-CH_2-CH=CH_2$$

But – 1 – ene
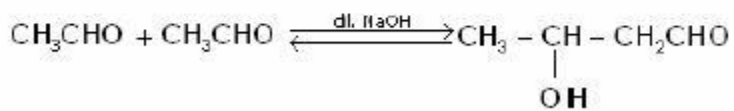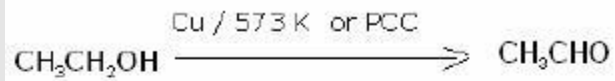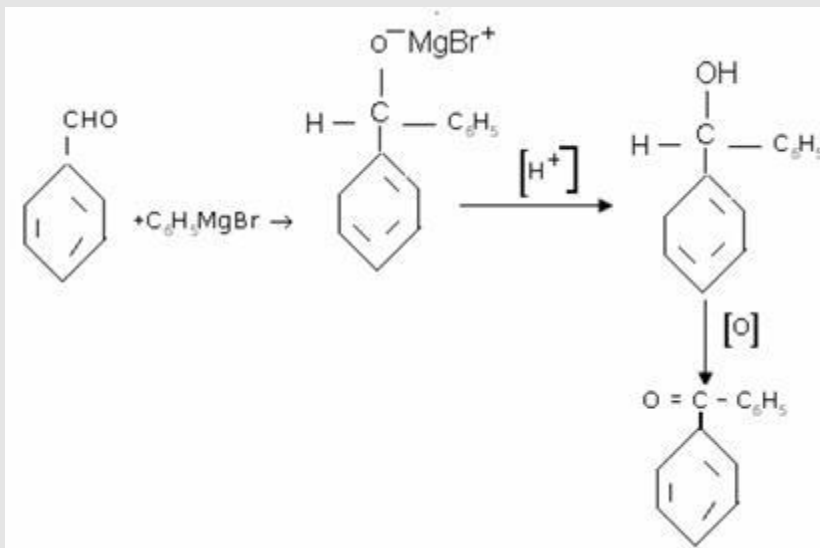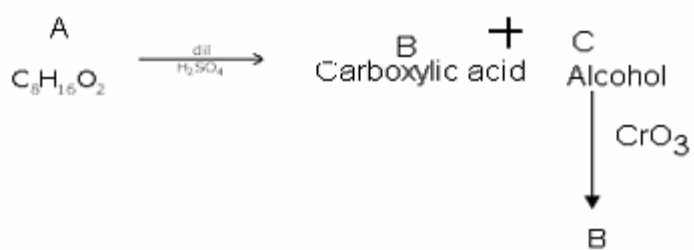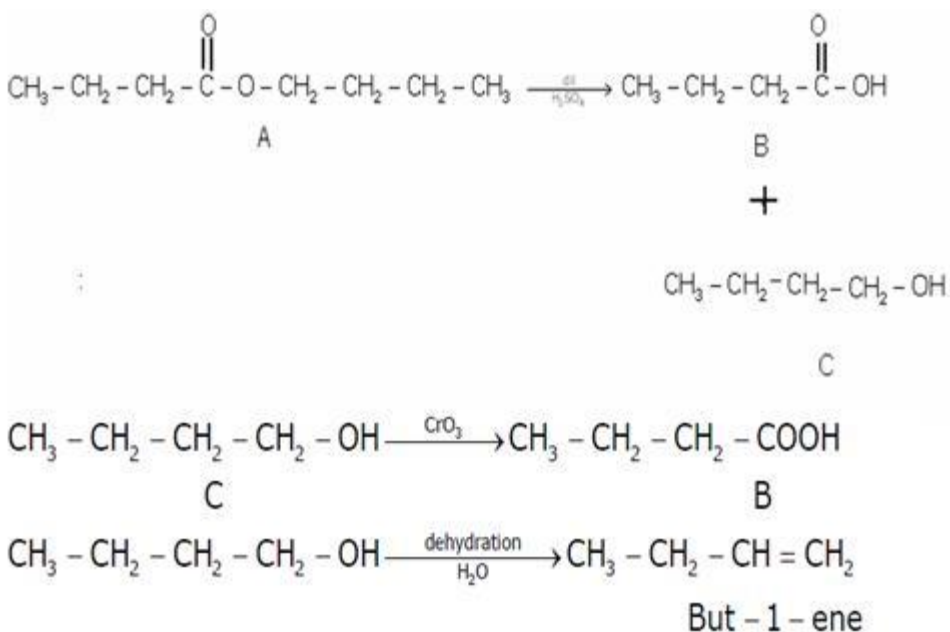
Question 2

Write the structural formula of 1 - phenylpentan - 1 - one.
Ans.
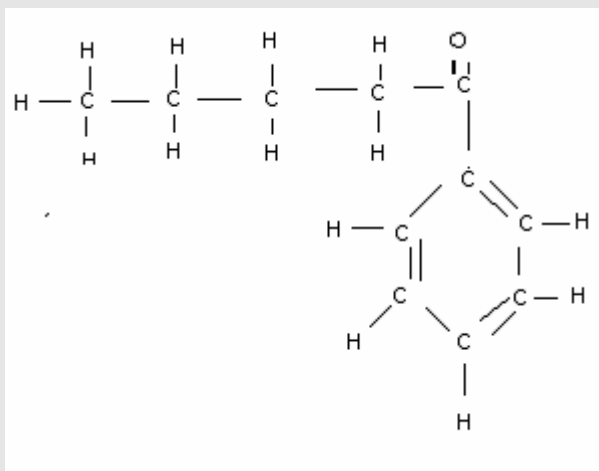
Question 3

(a) Describe the following giving suitable examples:

(i) Cannizzaro reaction (ii) Aldol condensation

(b) Give a chemical test to distinguish between ethanal and propanal.

Ans.

(a) (i) Cannizzaro reaction: Aldehydes having no α-hydrogen atoms undergo self oxidation and reduction (disproportionation) reactions on treatment with a concentrated alkali. In such reactions, one molecule of aldehyde gets oxidised to form an acid and the other molecule of aldehyde gets reduced to form an alcohol.

For example, two molecules of formaldehyde, in the presence of concentrated NaOH, produce methanol and sodium formate.

$$HCHO + HCHO \xrightarrow{\text{NaOH}} CH_3OH + HCOONa$$
Methanal   Methanol   Sod. formate
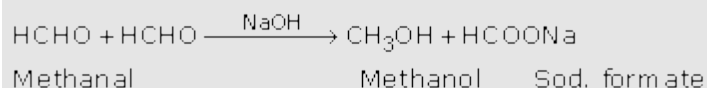
(ii) Aldol condensation: In the presence of a dilute alkali, aldehydes and ketones (having at least one α-hydrogen atom) produce β-hydroxyl aldehyde (aldol) and β-hydroxyl ketone respectively. The aldol and ketol then readily lose water to give α, β-unsaturated carboxyl compounds. Such reactions are called aldol condensation.

For example, in the presence of dil. NaOH, ethanal (aldehyde) produces 3-hydroxybutanal (aldol), which then readily loses water to produce but-2-enal.

2 molecules of acetaldehyde   3-hydroxybutanal
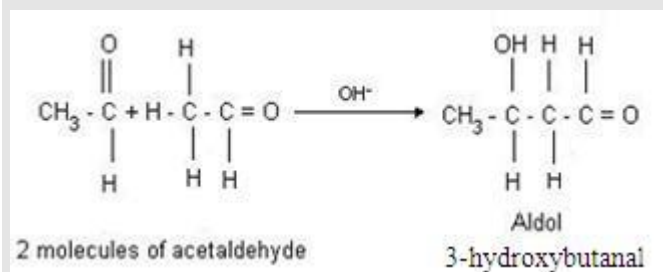
(b) When warmed with iodine and sodium hydroxide solution, ethanal gives yellow crystals of iodoform.

Propanal does not give this iodoform test

$$CH_3CHO + 4NaOH + 3I_2 \xrightarrow{\Delta} CH_3I \downarrow + HCOONa + 3NaI + 3H_2O$$
Ethanal   Iodoform
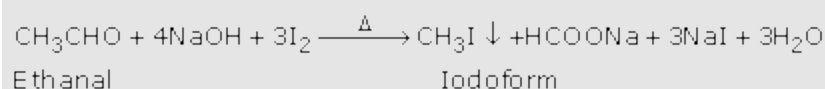
Question 4

(a) Explain the mechanism of a nucleophilic attack on the carbonyl group of an aldehyde or a ketone.

(b) An organic compound (A) (molecular formula C$_8$H$_{16}$O$_2$) was hydrolyzed with dilute sulphuric acid to give a carboxylic acid (B) and an alcohol (c). Oxidation of (C) with chromic acid also produced (B). On dehydration (C) gives but-1-ene. Write the equations for the reactions involved.

<div align="center">Or</div>

(a) Given chemical tests to distinguish between the following pairs of compounds:

(i) Ethanal and Propanal

(ii) Phenol and Benzoic acid

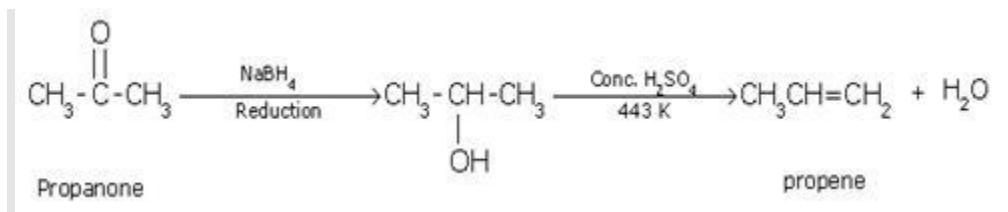**(b) How will you bring about the following conversions?**

(i) Benzoic acid to benzaldehyde

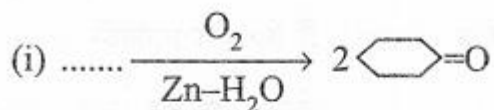**(ii) Ethanal to but-2-enal**

(iii) Propanone to propene

Give complete reaction in each case.

Ans.

(a)Nucleophile attacks the electrophilic carbon atom of the polar carbonyl group of an aldehyde and a ketone from a direction approximately perpendicular to the plane of sp^2 hybridised orbitals of carbonyl carbon.

The hybridisation of carbon changes from sp^2 to sp^3 in this process, and a tetrahedral alkoxide intermediate is produced.

This intermediate captures a proton from the reaction medium to give the electrically neutral product. The net result is addition of Nu^- and H^+ across the carbon oxygen double bond.

(b)

$$CH_3CH_2CH_2COOCH_2CH_2CH_2CH_3 \xrightarrow[\text{Hydrolysis}]{\text{dil. } H_2SO_4} CH_3CH_2CH_2COOH + CH_3CH_2CH_2CH_2OH$$

A	B	C
Butyl butanoate	Butanoic acid	Butan-1-ol
(MF. = $C_8H_{16}O_2$)		

$$CH_3CH_2CH_2CH_2OH \xrightarrow[\text{Oxidation}]{CrO_3/H_2SO_4} CH_3CH_2CH_2COOH$$

  C   B

$$CH_3CH_2CH_2CH_2OH \xrightarrow[\text{-H}_2O,\text{Dehydration}]{\text{conc.}H_2SO_4} CH_3CH_2CH = CH_2$$

  C   But – 1– ene

Or

(a)Chemical test to distinguish between ethanal and propanal:

Ethanal	Propanal
(CH₃CHO)	(CH₃CH₂CHO)
Iodoform test: Ethanal gives yellow ppt. of iodoform with an alkaline solution of iodine sonce it has the group $CH_3-\overset{\overset{O}{\|\|}}{C}-$	Propanal does not give yellow ppt. of iodoform with an alkaline solution of iodine
$CH_3CHO + 3I_2 + 4NaOH \xrightarrow{Heat} \underset{Sodium\ formate}{HCOONa} + \underset{\underset{Yellow\ ppt.}{Iodoform}}{CHI_3} + 3NaI + 3H_2O$	

(b) Chemical test to distinguish between phenol and benzoic acid

Phenol	Benzoic acid
On adding sodium bicarbonate to a phenol, brisk effervescence of CO_2 is not produced.	On adding sodium bicarbonate to a benzoic acid, brisk effervescence of CO_2 is produced. $\underset{\bigcirc}{COOH} + NaHCO_3 \longrightarrow \underset{\bigcirc}{COO^-Na^+} + H_2O + \underset{\underset{effervescence}{Brisk}}{CO_2}$

(i) Benzoic acid to benzaldehyde

(ii)Ethanal to but-2-enal

(iii)Propanone to propene

Propanone → propene

Question 5

Draw the structure of 3-methylbutanal.
Ans.

$$\overset{4}{C}H_3 - \overset{3}{C}H(\overset{|}{CH_3}) - \overset{2}{C}H_2 - \overset{1}{C}HO$$

Question 6

(a) Complete the following reaction statements by giving the missing starting material, reagent or product as required:

(i) .... $\xrightarrow[Zn-H_2O]{O_2}$ 2 ⬡=O

(ii) ⬡=CH_2 —.......→ ⬡–CHO

(iii) [benzene ring]–CH_2CH_3 $\xrightarrow[KOH, \text{ heat}]{KMnO_4}$ ....
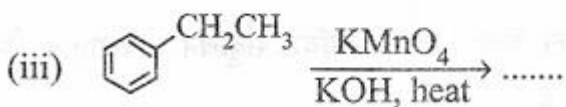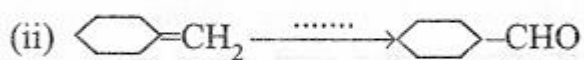
(b) Describe the following reactions:

(i) Cannizaro reaction

(ii) Cross aldol condensation

Or

(a) How would you account for the following:

(i) Aldehydes are more reactive than ketones towards nucleophiles.

(ii) The boiling points of aldehydes and ketones are lower than of the corresponding acids.

(iii) The aldehydes and ketones undergo a number of addition reactions.

(b) Give chemical tests to distinguish between:

(i) Acetaldehyde and benzaldehyde

(ii0 Propanone and propanol

Ans.

(a)

(i) Cyclohexyldiene cyclohexane:
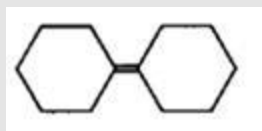
(ii) BH_3, H_2O_2/OH^-, PCC

(iii) Salt of benzoic acid:
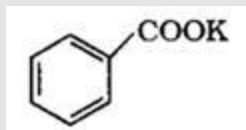
(b) (i) Cannizzaro reaction: Aldehydes which do not have an α-hydrogen atom, undergo self oxidation and reduction reaction on treatment with a concentrated alkali.
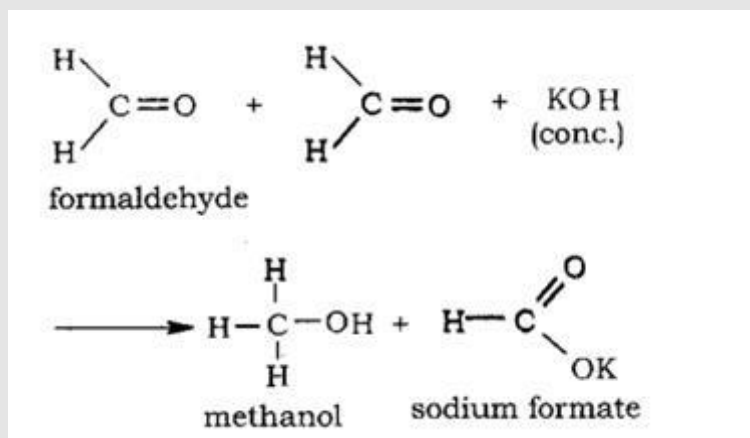
(ii) Cross aldol condensation: When aldol condensation is carried out between two different aldehydes and /or ketones, it is called Cross aldol condensation.

CH₃CHO + CH₃CH₂CHO →(1. NaOH 2. Δ) CH₃-CH=CH-CHO (But-2-enal, from two molecules of ethanal) + CH₃CH₂-CH=C(-CH₃)-CHO (2-Methylpent-2-enal, from two molecules of propanal) — simple or self aldol products + CH₃-CH=C(-CH₃)-CHO (2-Methylbut-2-enal) + CH₃CH₂-CH=CHCHO (Pent-2-enal) — from one molecule of ethanal and one molecule of propanal — cross aldol products

C₆H₅-CHO + C₆H₅-C(=O)-CH₃ →(OH⁻, 293 K) C₆H₅-CH=CH-C(=O)-C₆H₅

Or

(a)

(i) Two alkyl groups present in ketones reduce the positive charge on carbon atom of the carbonyl group more effectively than in aldehydes hence aldehydes are more reactive than ketones towards nucleophiles / or sterically, the presence of two relatively large substituents in ketones hinders the approach of nucleophile to carbonyl carbon than in aldehydes having only one such substituents.

(ii) Because of the absence of hydrogen bonding in aldehydes and ketones, their boiling points are lower than those of the corresponding acids and alcohols.

(iii) Because of the presence of the sp^2 hybridised orbitals (or π-bond) of carbonyl carbon, aldehydes and ketones undergo a number of addition reactions.

(b)

(i) Acetaldehyde and benzaldehyde: Acetaldehyde gives yellow ppt of Iodoform (CHI_3) on addition of NaOH / I_2 whereas benzaldehyde does not give this test.

(ii) Propanone and propanol: Propanone gives yellow ppt of Iodoform (CHI_3) on addition of NaOH / I_2 whereas propanol does not give this test. Or / Propanol gives brisk effervesence on adding a piece of Sodium metal whereas Propanone does not give this test.

Question 7

Write the IUPAC name of the compound:

$$CH_3-CH-CO-CH-CH_3$$
$$\quad\;\; |\qquad\qquad |$$
$$\quad\;\; CH_3\qquad\quad CH_3$$

Ans.

$$\overset{5}{CH_3}-\overset{4}{CH}-\overset{3}{CO}-\overset{2}{CH}-\overset{1}{CH_3}$$
$$\qquad\;\; |\qquad\qquad\quad |$$
$$\qquad\;\; CH_3\qquad\qquad CH_3$$

IUPAC name: 2, 4-dimethylpentan-3-one.

Question 8
(a) Give the chemical test to distinguish between
(i) Propanal and propanone,
(ii) Benzaldehyde and acetophenone.
        (b) How would you obtain
                (i) But–2-enal from ethanal,
                (ii) Butanoic acid from butanol,
                (iii) Benzoic acid from ethylbenzene?
                                    OR
        (a) Describe the following giving linked chemical equations:
                (i) Cannizzaro reaction
                (ii) Decarboxylation
        (b) Complete the following chemical equations:

(i)

(ii)

(iii) $C_6H_5CONH_2 \xrightarrow[\text{heat}]{H_2O^+}$

Ans.

(a)

(i) Propanal (CH_3CH_2CHO) can be distinguished from propanone (CH_3COCH_3) by iodoform test.

Being a methyl ketone, propanone on treatment with I_2/NaOH undergoes iodoform reaction

to give a yellow ppt. of iodoform $CH_3COCH_3 + 3NaOI \longrightarrow CHI_3 + CH_3COONa + 2NaOH$

Propanone Iodoform

Propanal on the other hand does not give this test.

$CH_3CH_2CHO \xrightarrow{\text{NaOI}}$ No yellow ppt. of Iodoform

Propanal

(ii) Benzaldehyde (C_6H_5CHO) and acetophenone ($C_6H_5COCH_3$) can be distinguished by iodoform test.

Acetophenone, being a methyl ketone on treatment with I_2/NaOH undergoes iodoform reaction to give a yellow ppt. of iodoform. On the other hand, benzaldehyde does not give this test.

$C_6H_5COCH_3 + 3NaOI \longrightarrow C_6H_5COONa + CHI_3 + 2NaOH$
Acetophenone   Iodoform

$C_6H_5CHO \xrightarrow{\text{NaOI}}$ No yellow ppt of iodoform

Benzaldehyde

(b)

(i)

$2CH_3CHO \xrightarrow[\text{(Aldol condensation)}]{\text{Dil NaOH}} CH_3CH - CH_2 - CHO$
                                                    |
                                                    OH
                                         3 – hydroxybutanal

$-H_2O \mid H_3O^+/\Delta$

$CH_3 - CH = CH - CHO$
But – 2 – enal

(ii) $CH_3CH_2CH_2CH_2OH \xrightarrow[\text{(ii) Dil.H}_2SO_4]{\text{(i)K}_2Cr_2O_7 \text{/H}_2SO_4} CH_3CH_2CH_2COOH$

Butanol Butanoic acid

(iii)

Ethylbenzene → Benzoic acid

OR

(i) Cannizzaro reaction

In this reaction, the aldehydes which do not have an α - hydrogen atom, undergo self oxidation and reduction (disproportionation) reaction on treatment with a concentrated alkali.

Example:

Formaldehyde   Methanol   Potassium formate

(ii) Decarboxylation

The decarboxylation reaction can be carried out either by using soda lime or by electrolysis

- Using soda lime

Sodium salts of carboxylic acids when heated with soda lime (NaOH + CaO) in the ratio 3:1 undergo decarboxylation reaction to yield alkanes.

$$RCOONa \xrightarrow[\text{Heat}]{NaOH - CaO} R - H + Na_2CO_3$$

(Alkane)

- Electrolytic decarboxylation

Electrolysis of aqueous solutions of sodium of potassium salts of carboxylic acids give alkanes having twice the number of carbon atoms present in the alkyl group of acid. This is known as Kolbe's decarboxylation.

$$2RCOONa \longrightarrow 2RCOO^- + 2Na^+$$

$$H_2O \longrightarrow 2OH^- + 2H^+$$

At Anode:-

$$2H^+ + 2e^- \longrightarrow H_2$$

(b)

(i)

Benzoic acid

(ii)

Phthaloyl chloride

(iii)

$$C_6H_5CONH_2 \xrightarrow[\text{heat}]{H_3O^+} C_6H_5COOH$$
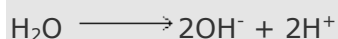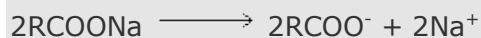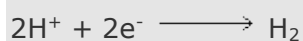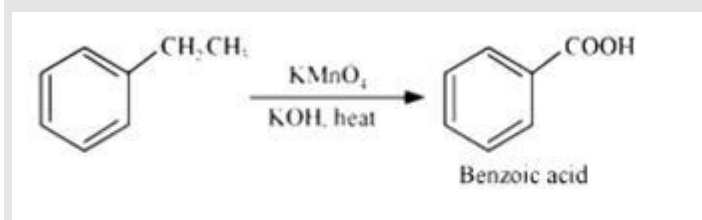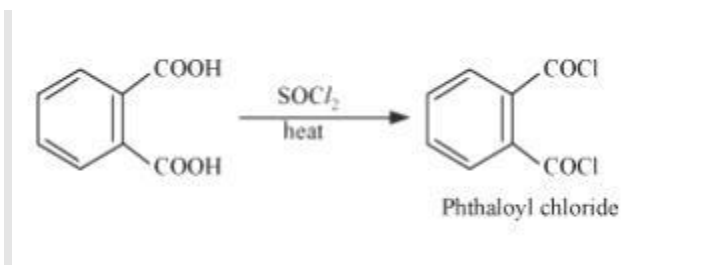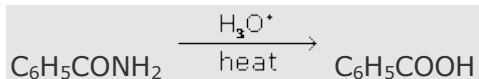
Benzoic acid

Question 9

(a) Explain the mechanism of a nucleophilic attack on the carbonyl group of an aldehyde or a ketone.

(b) An organic compound (A) (molecular formula $C_8H_{16}O_2$) was hydrolyse with dilute sulphuric acid to give a carboxylic acid (B) and an alcohol (c). Oxidation of (C) with chromic acid also produced (B). On dehydration (C) gives but-1-ene. Write the equations for the reactions involved.

OR

(a) Given chemical tests to distinguish between the following pairs of compounds:

(i) Ethanal and Propanal

(ii) Phenol and Benzoic acid

(b) How will you bring about the following conversions?

(i) Benzoic acid to benzaldehyde

(ii) Ethanal to but-2-enal

(iii) Propanone to propene

Give complete reaction in each case.

Ans.
(a) Nucleophile attacks the electrophilic carbon atom of the polar carbonyl group of an aldehyde and a ketone from a direction approximately perpendicular to the plane of sp^2 hybridised orbitals of carbonyl carbon. The hybridisation of carbon changes from sp^2 to sp^3 in this process, and a tetrahedral alkoxide intermediate is produced. This intermediate captures a proton from the reaction medium to give the electrically neutral product. The net result is addition of Nu^- and H^+ across the carbon oxygen double bond.

(b)

$$CH_3CH_2CH_2COOCH_2CH_2CH_2CH_3 \xrightarrow[\text{Hydrolysis}]{\text{dil. } H_2SO_4} CH_3CH_2CH_2COOH + CH_3CH_2CH_2CH_2OH$$

A
Butyl butanoate
(MF.= $C_8H_{16}O_2$)

B
Butanoic acid

C
Butan–1–ol

$$CH_3CH_2CH_2CH_2OH \xrightarrow[\text{Oxidation}]{CrO_3/H_2SO_4} CH_3CH_2CH_2COOH$$

C

B

$$CH_3CH_2CH_2CH_2OH \xrightarrow[-H_2O]{\text{Conc.} H_2SO_4} CH_3CH_2CH = CH_2$$

C

But – 1– ene

OR

(a) Chemical test to distinguish between ethanal and propanal:

Ethanal (CH₃CHO)	Propanal (CH₃CH₂CHO)
Iodoform test: Ethanal gives yellow ppt. of iodoform with an alkaline solution of iodine since it has the $$\overset{O}{\underset{}{\overset{\|}{CH_3-C-}}}$$ group	Propanal does not give yellow ppt. of iodoform with an alkaline solution of iodine
$$CH_3CHO + 3I_2 + 4NaOH \xrightarrow{\text{Heat}}$$ $$HCOONa + CHI_3 + 3NaI + 3H_2O$$ Sodium formate (Iodoform) (Yellow ppt.)	

(b) Chemical test to distinguish between phenol and benzoic acid

Phenol	Benzoic acid
On adding sodium bicarbonate to a phenol, brisk effervescence of CO₂ is not produced.	On adding sodium bicarbonate to a benzoic acid, brisk effervescence of CO₂ is produced. $$C_6H_5COOH + NaHCO_3 \longrightarrow C_6H_5COO^-Na^+ + H_2O + CO_2$$ Brisk effervescence

(i) Benzoic acid to benzaldehyde

COOH $\xrightarrow[-SO_2,-HCl]{SOCl_2}$ COCl $\xrightarrow[Pd-BaSO_4]{H_2}$ CHO

Benzoic acid → Benzaldehyde

(ii) Ethanal to but-2-enal

$$2CH_3CHO \xrightarrow[\text{Aldol condensation}]{\text{dil. NaOH}} CH_3-\overset{\overset{\displaystyle OH}{|}}{CH}-CH_2-CHO \xrightarrow[-H_2O]{\Delta} CH_3-CH=CH-CHO$$

Ethanal   But–2–enal

(iii) Propanone to propene

$$CH_3-\overset{\overset{\displaystyle O}{||}}{C}-CH_3 \xrightarrow[\text{Reduction}]{\text{NaBH}_4} CH_3-\overset{\overset{\displaystyle}{|}}{\underset{\underset{\displaystyle OH}{|}}{CH}}-CH_3 \xrightarrow[\text{443 K}]{\text{Conc. H}_2\text{SO}_4} CH_3CH=CH_2 + H_2O$$
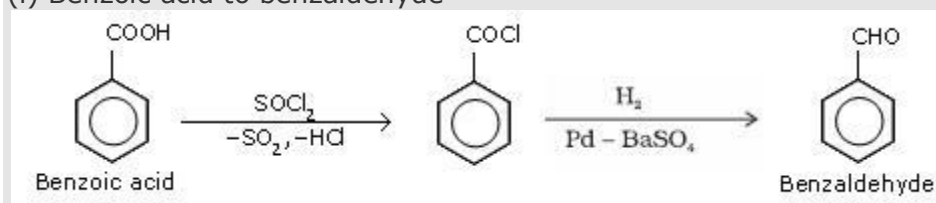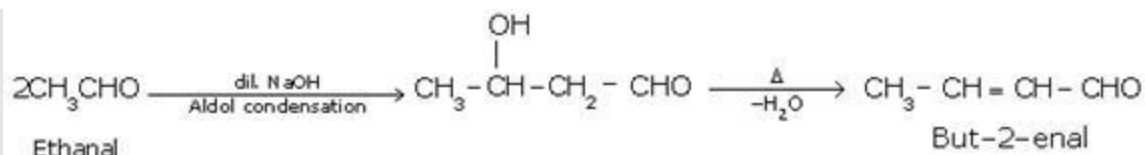
Propanone   propene
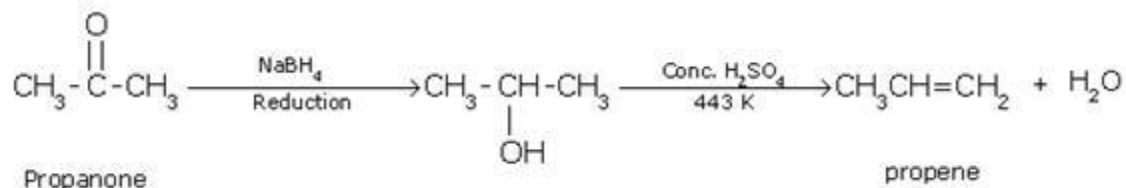
Question 10

Arrange the following compounds in an increasing order of then reactivity in nucleophilic addition reactions: ethanol, propanal, propanone, butanone.

Ans.

Order of reactivity in nucleophilic addition reactions:

Ethanal> propanal> propanone> butanone

Question 11

Write a note on aldol condensation?

Ans.

Aldehyde and ketone having alpha –H atom are treated with a dilute Alkali, two molecules of such compound condense to form beta-hydroxy Aldehyde and a beta –hydroxy ketone. The reaction is called as Aldol condensation.

$$2\ CH_3-CHO \underset{}{\overset{\text{dil. NaOH}}{\rightleftharpoons}} CH_3-\overset{\overset{\displaystyle}{|}}{\underset{\underset{\displaystyle OH}{|}}{CH}}-CH_2-CHO \xrightarrow[-H_2O]{\Delta} CH_3-CH=CH-CHO$$

Ethanal   3-Hydroxybutanal   (Aldol condensation
                                     (Aldol)   product)

$$2CH_3-CO-CH_3 \underset{}{\overset{\text{Ba(OH)}_2}{\rightleftharpoons}} CH_3-\overset{\overset{\displaystyle CH_3}{|}}{\underset{\underset{\displaystyle OH}{|}}{C}}-CH_2CO-CH_3 \xrightarrow[-H_2O]{\Delta} CH_3-\overset{\overset{\displaystyle CH_3}{|}}{C}=CH-CO-CH_3$$

Propanone   (Ketol)   4-Methylpent-3-en-2-one
                        4-Hydroxy-4-methylpentan-2-one   (Aldol condensation
                                                     product)
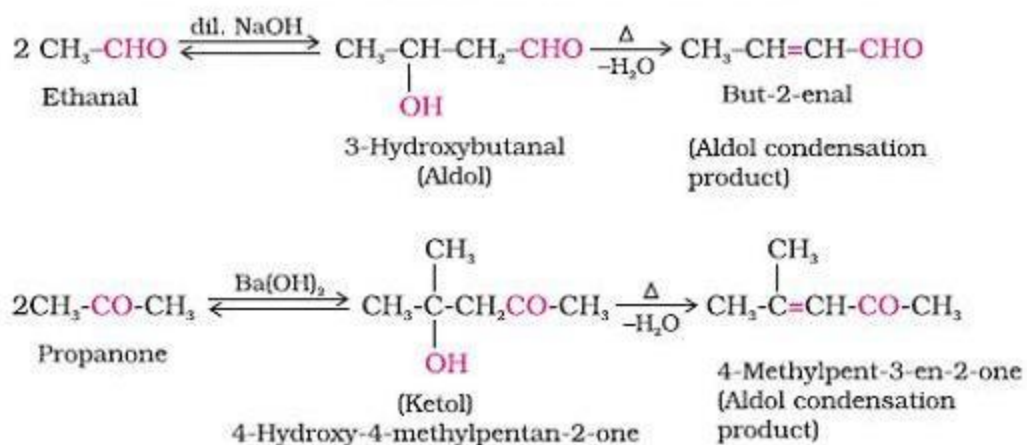
Question 12

What happens when Acetophenone reacts with Br$_2$ in presence of anhydrous AlCl$_3$?

Ans.

Acetophenone reacts with Br$_2$ in presence of anhydrous AlCl$_3$ to give m-Bromo Acetophenone.

Question 13
Name two methods used to convert a carbonyl group into -CH$_2$ group.
Ans.

Clemmensen reduction or Wolff-Kishner Reduction are used to convert a carbonyl group into –CH$_2$ group.

$$\begin{array}{c}\diagup\\\diagdown\end{array}C{=}O \xrightarrow[HCl]{Zn\text{-}Hg} \begin{array}{c}\diagup\\\diagdown\end{array}CH_2 + H_2O \qquad \text{(Clemmensen reduction)}$$

$$\begin{array}{c}\diagup\\\diagdown\end{array}C{=}O \xrightarrow[-H_2O]{NH_2NH_2} \begin{array}{c}\diagup\\\diagdown\end{array}C{=}NNH_2 \xrightarrow[heat]{KOH/ethylene\ glycol} \begin{array}{c}\diagup\\\diagdown\end{array}CH_2 + N_2$$

(Wolff-Kishner rduction)
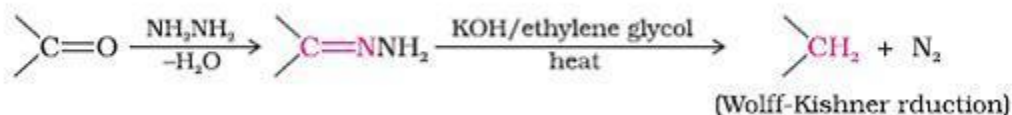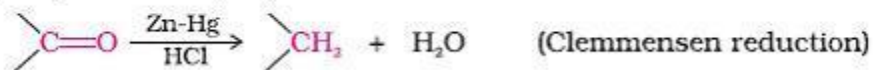
Question 14
Name a reagent to convert Toluene to Benzaldehyde?
Ans.
Chromyl chloride in CCl$_4$ or Chromic trioxide in Acetic anhydride [CrO$_3$/ [(CH$_3$CO)$_2$O] followed by alkaline hydrolysis.

Question 15
Does Formaldehyde undergo Aldol condensation?
Ans.
Formaldehyde does not undergo Aldol condensation reaction as it does not contain any alpha hydrogen atom.

Question 16
Compound A C$_5$H$_{10}$O forms a Phenylhydrazone and gives negative Tollens and Iodoform tests. Compound A on reduction gives n-Pentane and on oxidation gives Propionic acid and Formic acid. Give the structure of the compound A and explain the reactions.
Ans.

Compound A is 3-Pentanone $CH_3CH_2COCH_2CH_3$.

$$CH_3CH_2COCH_2CH_3 \xrightarrow{NH_2NC_6H_5} CH_3CH_2C\overset{\overset{\displaystyle CH_2CH_3}{|}}{=}NNHC_6H_5 \quad + \quad H_2O$$

3-Pentanone   3-Pentanone phenyl hydrazone
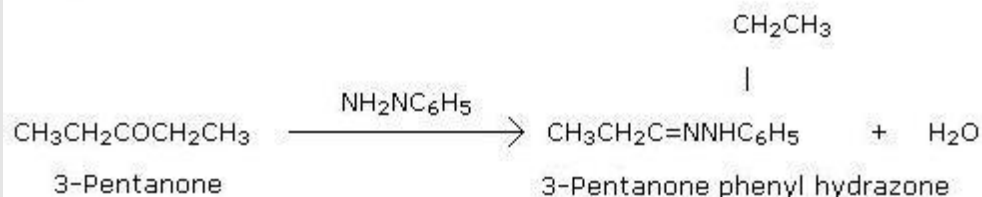
This on reduction with Zinc amalgam and conc HCl gives n-Pentane

$$CH_3CH_2COCH_2CH_3 + 4[H] \xrightarrow{Zn-Hg, \; HCl} CH_3CH_2CH_2CH_2CH_3$$

3-Pentanone   n-Pentane

$$CH_3CH_2COCH_2CH_3 \xrightarrow{Conc. \; HNO_3} CH_3CH_2COOH \quad + \quad CH_3COOH$$

3-Pentanone   Propionic acid   Acetic acid
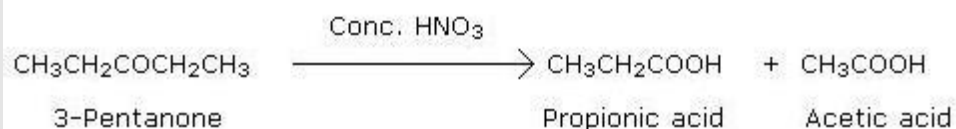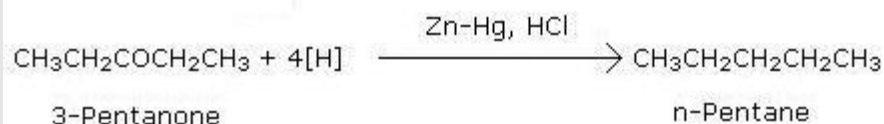
Question 17
What happens when benzene is treated with acetyl chloride?
Ans.
When benzene is treated with acetyl chloride it forms acetophenone.

$$C_6H_5 \quad + \quad CH_3COCl \xrightarrow{anhydrous \; AlCl_3} C_6H_5COCH_3 \quad + \quad HCl$$

Benzene   Acetyl chloride   Acetophenone
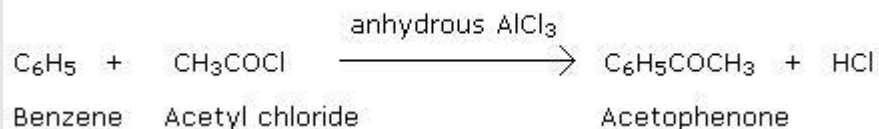
Question 18
How to get Salicyaldehyde from Phenol?
Ans.
Reimer-Tiemann reaction is a method for the preparation Ortho-hydroxybenzaldehyde. In this method Phenol is treated with Chloroform and Alkali at 333-343K when o-hydroxybenzaldehyde along with the p-isomer is obtained.

Question 19
What is Rosenmunds reaction?
Ans.
Acid chlorides are reduced to corresponding Aldehydes by passing hydrogen gas through boiling Xylene solution of the Acid chloride in presence of Palladium catalyst supported over $BaSO_4$ and poisoned by the addition of Sulphur.

$$CH_3COCl \quad + \quad H_2 \xrightarrow[Boiling \; Xylene]{Pd, \; BaSO_4, \; S} CH_3CHO \quad + \quad HCl$$
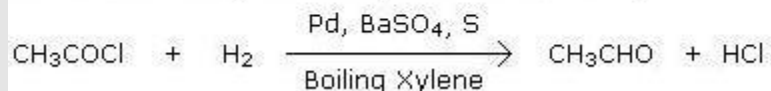
Question 20
What happens when calcium acetate is heated?
Ans.

When calcium acetate is heated it forms acetone and calcium carbonate.

$$(CH_3COO)_2\text{-}Ca \xrightarrow{\text{Heat}} CH_3COCH_3 + CaCO_3$$

Calcium acetate   Acetone
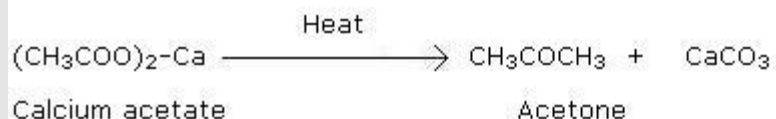
Question 1

(a) Give the chemical test to distinguish between

(i) Propanal and propanone,

(ii) Benzaldehyde and acetophenone.

(b) How would you obtain

(i) But-2-enal from ethanal,

(ii) Butanoic acid from butanol,

(iii) Benzoic acid from ethylbenzene

<p align="center">Or</p>

(a) Describe the following giving linked chemical equations:

(i) Cannizzaro reaction

(ii) Decarboxylation

(b) Complete the following chemical equations:

(i)

(ii)

(iii) $C_6H_5CONH_2 \xrightarrow[\text{heat}]{H_2O^+}$

Ans.

(a)
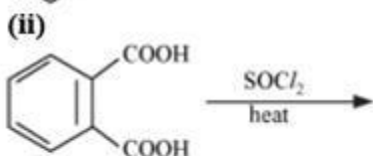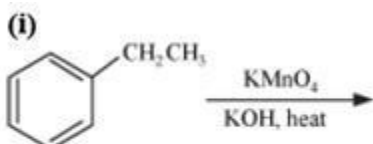
(i) Propanal (CH_3CH_2CHO) can be distinguished from propanone (CH_3COCH_3) by iodoform test.

Being a methyl ketone, propanone on treatment with I_2/NaOH undergoes iodoform reaction to give a yellow ppt. of iodoform $CH_3COCH_3 + 3NaOI \longrightarrow CHI_3 \downarrow + CH_3COONa + 2NaOH$

Propanone Iodoform

Propanal on the other hand does not give this test.

(ii) Benzaldehyde (C_6H_5CHO) and acetophenone ($C_6H_5COCH_3$) can be distinguished by iodoform test.

Acetophenone, being a methyl ketone on treatment with I_2/NaOH undergoes iodoform reaction to give a yellow ppt. of iodoform. On the other hand, benzaldehyde does not give this test.

$C_6H_5COCH_3 + 3NaOI \longrightarrow C_6H_5COONa + CHI_3 \downarrow + 2NaOH$

Acetophenone Iodoform

$C_6H_5CHO \xrightarrow{NaOI}$ No yellow ppt of iodoform

Benzaldehyde

(b)

(i)

(ii) $CH_3CH_2CH_2CH_2OH \xrightarrow[\text{(ii) Dil.}H_2SO_4]{\text{(i)}K_2Cr_2O_7/H_2SO_4} CH_3CH_2CH_2COOH$

Butanol Butanoic acid

(iii)

Ethylbenzene

KMnO₄ – KOH → Benzoic acid

Or

(i) Cannizaro reaction:

In this reaction, the aldehydes which do not have an α - hydrogen atom, undergo self oxidation and reduction (disproportionation) reaction on treatment with a concentrated alkali.

Example:

Formaldehyde   Methanol   Potassium formate

(ii) Decarboxylation
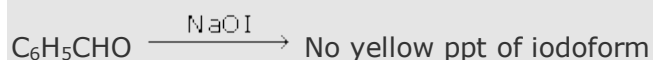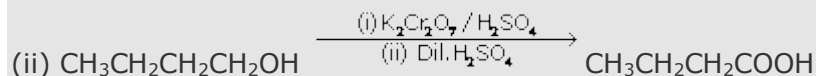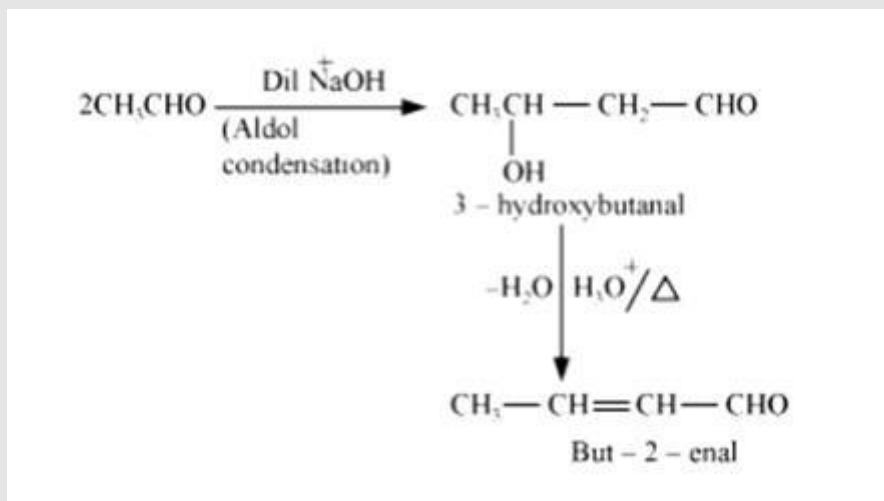
The decarboxylation reaction can be carried out either by using soda lime or by electrolysis

1. Using soda lime

Sodium salts of carboxylic acids when heated with soda lime (NaOH + CaO) in the ratio 3:1 undergo decarboxylation reaction to yield alkanes.

$$R - COONa \xrightarrow[\text{Heat}]{\text{NaOH} - \text{CaO}} R - H + Na_2CO_3$$
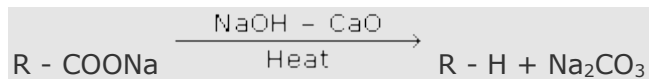
(Alkane)

2. Electrolytic decarboxylation

Electrolysis of aqueous solutions of sodium of potassium salts of carboxylic acids give alkanes having twice the number of carbon atoms present in the alkyl group of acid. This is known as Kolbe's decarboxylation.

$$2RCOONa \longrightarrow 2RCOO^- + 2Na^+$$

$$H_2O \longrightarrow 2OH^- + 2H^+$$

At Anode:-

$$2RCOO^- - 2e^- \longrightarrow CO_2 + R\text{-}R$$

At cathode:

$$2H^+ + 2e^- \longrightarrow H_2$$

(b)

(i)

Benzoic acid

(ii)

Phthaloyl chloride

(iii)

$$C_6H_5CONH_2 \xrightarrow[\text{heat}]{H_3O^+} C_6H_5COOH$$
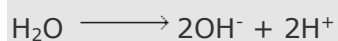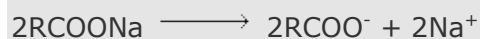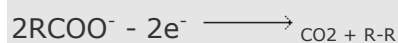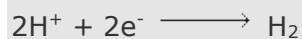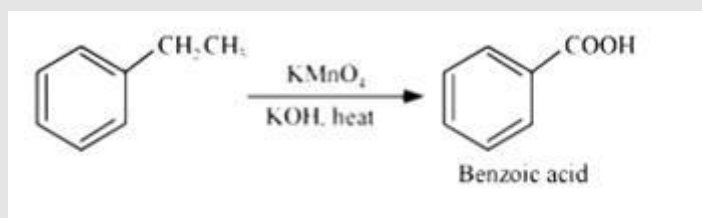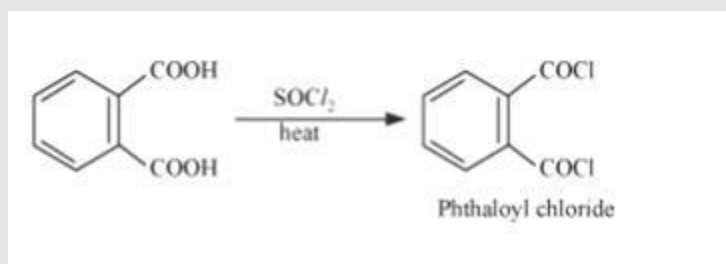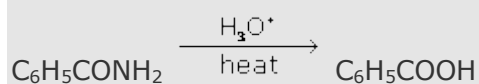
Benzoic acid

Question 2

Arrange the following compounds in an increasing order of their acid strengths:

(CH₃)₂ CHCOOH, CH₃ CH₂ CH(Br) COOH, CH₃ CH(Br) CH₂ COOH

Ans.

$(CH_3)_2$ CHCOOH < CH₃ CH (Br) CH₂ COOH < CH₃CH₂CH(Br)COOH

Question 3

Give chemical tests to distinguish between the following pairs of compounds:

(i) Propanal and propanone

(ii) Methyl acetate and ethyl acetate

(iii) Benzaldehyde and benzoic acid

Ans.

(i) Propanal and propanone can be distinguish by Tollen's test. Propanal will form the silver mirror. Propanal give this test but propanone (Ketones) do not respond to this test.

RCHO + 2[Ag(NH₃)₂]⁺ + 3OH⁻ $\rightarrow$ RCOO⁻ + 2Ag + 2H₂O + 4NH₃
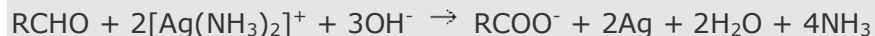
Silver mirror

(ii) Methyl acetate and ethyl acetate can be distinguished by the iodoform test of their hydrolysis products When ethyl acetate is boiled with excess of NaOH, ethyl alcohol and sodium acetate is formed. When this alkaline solution is heated with I₂, yellow precipitate of iodoform is formed.

$$CH_3COOCH_2CH_3 + NaOH \xrightarrow{Boil} CH_3COONa + CH_3CH_2OH$$
Ethyl acetate   Sodium acetate   Ethyl alcohol

$$CH_3CH_2OH + 4I_2 + 6NaOH \xrightarrow{\Delta} CHI_3 + 5NaI + HCOONa + 5H_2O$$
Ethyl alcohol   Iodoform
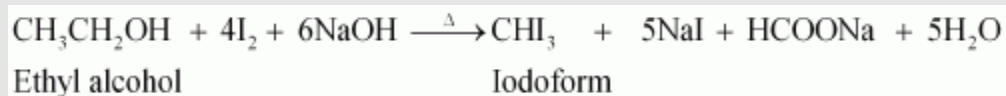
On hydrolysis, methyl acetate gives methyl alcohol that does not respond to the iodoform test.

$$CH_3COOCH_3 + NaOH \xrightarrow{Boil} CH_3COONa + CH_3OH$$
Methyl acetate   Sodium acetate   Methyl alcohol

$$CH_3OH \xrightarrow{I_2/NaOH/\Delta} \text{No yellow ppt. of iodoform}$$

Methanol

(iii) Benzaldehyde and benzoic acid can be distinguished by the $NaHCO_3$ test. Being an acid, benzoic acid responds to this test, but benzaldehyde does not.

Benzoic acid reacts with sodium bicarbonate to liberate CO_2.

Benzoic acid
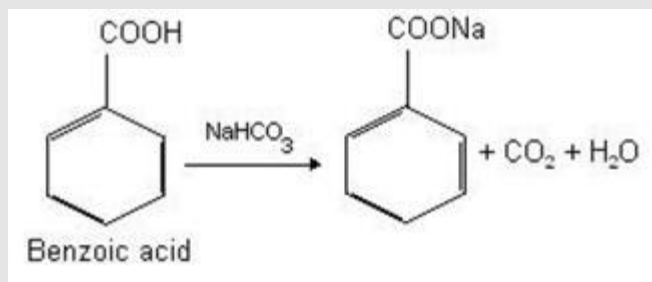
Question 4

    (a) Although phenoxide ion has more number of resonating structures than Carboxylate ion, Carboxylic acid is a stronger acid than phenol. Give two reasons.

    (b) How will you bring about the following conversions?

(i) Propanone to propane

(ii) Benzoyl chloride to benzaldehyde

(iii) Ethanal to but-2-enal

OR

    (a) Complete the following reactions:

(i) $2H-\underset{\underset{O}{\|}}{C}-H \xrightarrow{\text{Conc·KOH}}$

(ii) $CH_3COOH \xrightarrow{Br_2/P}$

(iii)   (benzene ring with CHO) $\xrightarrow[273-283 \text{ K}]{HNO_3/H_2SO_4}$
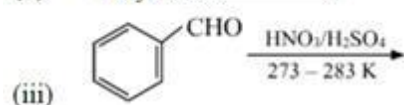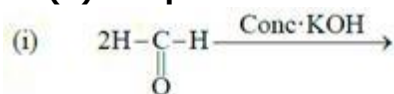
    (b) Give simple chemical tests to distinguish between the following pairs of compounds:

(i) Ethanal and Propanal

(ii) Benzoic acid and Phenol

Ans.

    (a) On losing a proton, carboxylic acids forms carboxylate ion and phenol forms phenoxide ion as follows:

RCOO⁻
Carboxylate ion   Phenoxide ion
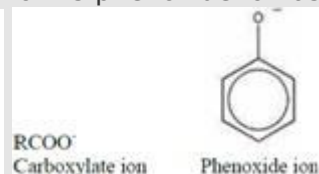
Now, the negative charge is delocalized in both molecules as follows:
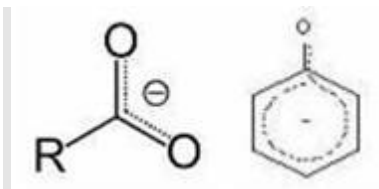
The conjugate base of carboxylic acid has two resonance structures in which negative charge in delocalized over two oxygen atoms (since O is more electronegative than C) which stabilizes the carboxylate ion. On the other hand, in phenoxide ion the charge is delocalized over entire molecule on the less electronegative atom (Carbon), thus resonance of phenoxide is not important in comparison to resonance in carboxylate ion. Further, in carboxylate ion the negative charge is effectively delocalized over two oxygen atoms whereas it is less effectively delocalized over one oxygen atom and less electronegative carbon atom.

Thus, Phenol is less acidic than carboxylic acids. In other words, carboxylic acids are stronger acids than phenol.

(b) (i) Conversion of Propanone to Propane:
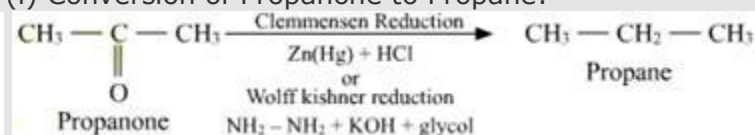
(ii) Conversion of Benzoyl chloride to benzaldehyde:
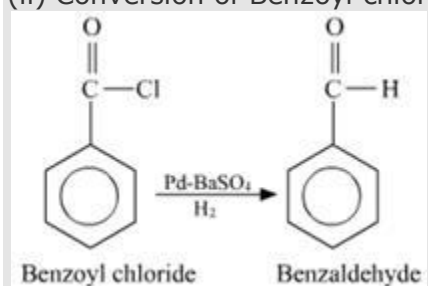
(iii) On treatment with dilute alkali, ethanol produces 3-hydroxybutanal gives But-2-enal on heating.

OR

(a) (i)

(ii)

(iii)

Benzaldehyde

m – Nitrobenzaldehyde
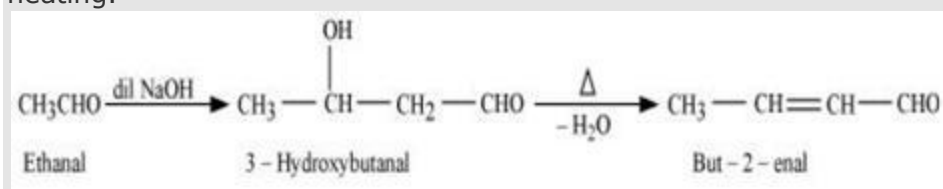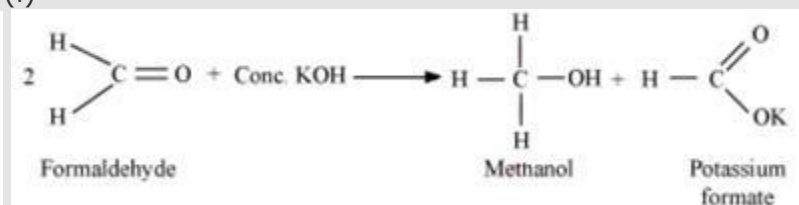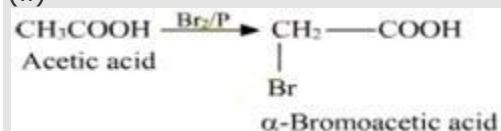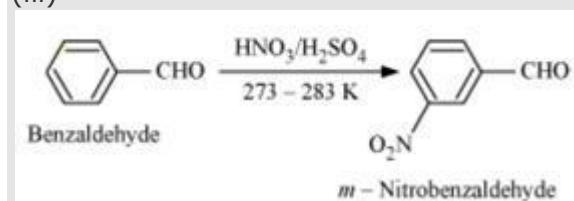
(b)
(i)Distinguish test between ethanal and propanal:
Iodoform Test: Ethanal gives iodoform test.
$CH_3CHO + 4NaOH + 3I_2 \rightarrow CHI_3$ (Yellow ppt.) $+ HCOONa + 3NaI + 3H_2O$
Propanal does not give this test.
$CH_3CH_2CHO + 4NaOH + 3I_2 \rightarrow$ No Reaction.
(ii) Distinguish test between Benzoic acid and Phenol:
$NaHCO_3$ Test: When Benzoic acid reacts with $NaHCO_3$, brisk effervescence of CO_2 gas evolved.
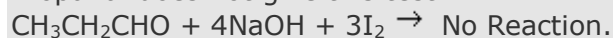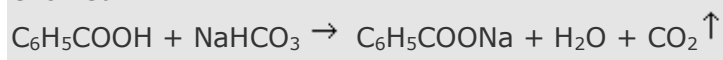
$C_6H_5COOH + NaHCO_3 \rightarrow C_6H_5COONa + H_2O + CO_2 \uparrow$
Phenols does not give any effervescence with $NaHCO_3$

Question 5

(a) Illustrate the following name reactions giving suitable example in each case:

(i) Clemmensen reduction

(ii) Hell-Volhard-Zelinsky reaction

(b) How are the following conversions carried out?

(i) Ethylcyanide to ethanoic acid

(ii) Butan-l-ol to butanoic acid

(iii) Benzic acid to m-bromobenzoic acid

OR

(a) Illustrate the following reactions given a suitable example for each.

(i) Cross aldol condensation

(ii) Decarboxylation

(b) Given simple tests to distinguish between the following pairs of compounds

(i) Pentan-2-one and Pentan-3-one

(ii) Benzaldehyde and Acetophenone

(iii) Phenol and Benzoic acid

Ans.

(a)

(i)　Clemmensen reduction:

It involves the reduction of aldehydes and ketones to the corresponding hydrocarbons with amalgamated Zinc and conc. HCl.

$$CH_3CHO + 4H \xrightarrow{Zn/Hg,ConcHCl} CH_3CH_3 + H_2O$$

(ii)　Hell vohlard Zelinsky reaction:

The aliphatic carboxylic acid containing α-hydrogen react with Cl_2 or Br_2 in the presence of small amount of red phosphorous to give α-haloacids. With excess of halogen all the α –hydrogen atoms of the aliphatic carboxylic acids are replaced by halogen atoms.

$$CH_3COOH \xrightarrow{Cl_2,P} CH_2Cl-COOH \xrightarrow{Cl_2,P} Cl2CHCOOH \xrightarrow{Cl_2,P} Cl_3COOH$$

(b)

(i)　Ethylcyanide to Ethanoic acid

$$CH_3 - CH_2 - CN \xrightarrow{H_2 O, H^+} CH_3CH_2CONH_2 \xrightarrow{H_2O, H^+}$$

$$CH_3CH_2COOH \xrightarrow{NH_3 (excess)} CH_3CH_2COONH_4 \xrightarrow{\Delta} CH_3CH_2CONH_2 \xrightarrow{B_2/KOH}$$

$$CH_3CH_2NH_2 \xrightarrow{HNO_2} CH_3 - CH_2 - OH \xrightarrow{K_2C_2O_7/H_2SO_4} CH_3COOH$$
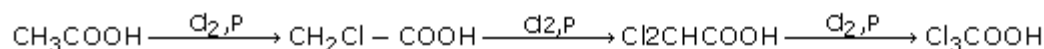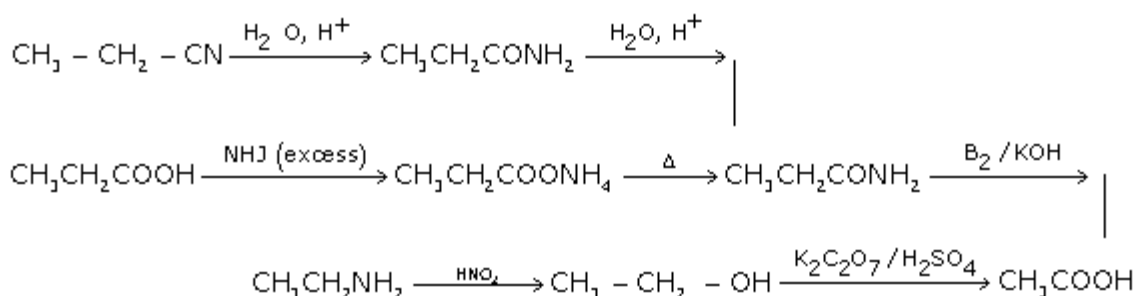
(ii)　benzoic acid to m-bromobenzoic acid

m-bromo benzoic acid

OR

(a)

(i)　Cross aldol condensation:

The condensation of two different carbonyl compounds(one of which must have one α-hydrogen) in the presence of a base is known as cross aldol condensation.

$$C_6H_5 - CHO + CH_3 - CO - CH_3 \xrightarrow{OH-} C_6H_5 - CH(OH) - CH_2 - CHO \xrightarrow{H + neal} C_6H_5 - CH = CHCHO$$
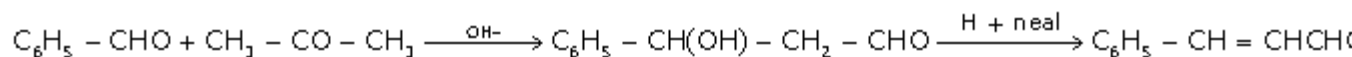
(ii)　Decarboxylation

When carboxylic acid loses carbondioxide the reaction is said to be decarboxylation reaction.

$$CH_3 - COONa + NaOH \xrightarrow{CaO,Heat} CH_4 + Na_2CO_3$$

Question 6
What happens when acid is treated with Thionyl chloride?
Ans.
When acid is treated with Thionyl chloride, it forms Acetyl chloride.

$$RCOOH + SOCl_2 \longrightarrow RCOCl + SO_2 + HCl$$

Question 7
Convert Ethanoic acid to Ethanoic anhydride?
Ans.

Question 8
How will you convert propanoic acid to butanoic acid?
Ans.

Question 9
How to get Ethanamide from Ethanoic acid?
Ans.
Ethanoic acid is heated in presence of Ammonia to get Ethanamide.

Question 10
Propanoic acid is treated with LiAlH$_4$ and the product is treated with conc. H$_2$SO$_4$ at 433K, What happens?
Ans.

Propanoic acid is treated with LiAlH₄ it forms Propan-1-ol and the product when treated with conc. H₂SO₄ at 433K it forms Propene.

$$CH_3CH_2COOH \xrightarrow{LiAlH_4} CH_3CH_2CH_2OH \xrightarrow[\text{conc } H_2SO_4]{433K} CH_3CH=CH_2$$

Propanoic acid   Propan-1-ol
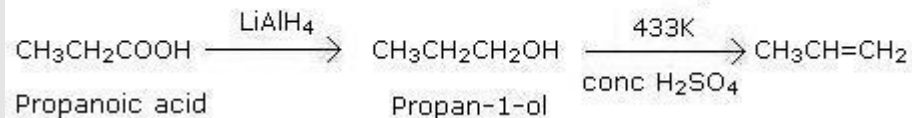
Question 11
Write a note on Hell-Volhard-Zelinsky Reaction.

Ans.

In Hell-Volhard-Zelinsky Reaction, Carboxylic acids having an alpha hydrogen are halogenated at the alpha position on treatment with chlorine and bromine in presence red phosphorous to give alpha-halo carboxylic acids.

$$R\text{-}CH_2\text{-}COOH \xrightarrow[\text{(ii) } H_2O]{\text{(i) } X_2/\text{Red phosphorus}} R\text{-}CH\text{-}COOH$$

$$\underset{X = Cl, Br}{\overset{|}{X}}$$

α – Halocarboxylic acid
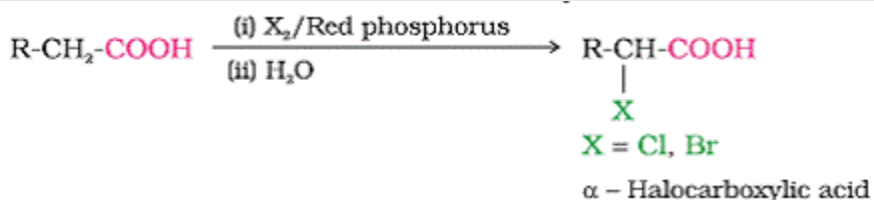
Question 12
What is Esterification reaction? Write the mechanism.

Ans.

Carboxylic acids are esterified with Alcohols or Phenols, in presence of mineral acid or HCl gas as catalyst.

$$RCOOH + R'OH \underset{H^+}{\overset{H^+}{\rightleftharpoons}} RCOOR' + H_2\overset{-}{O}$$
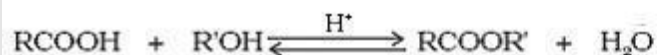
Mechanism of the reaction:
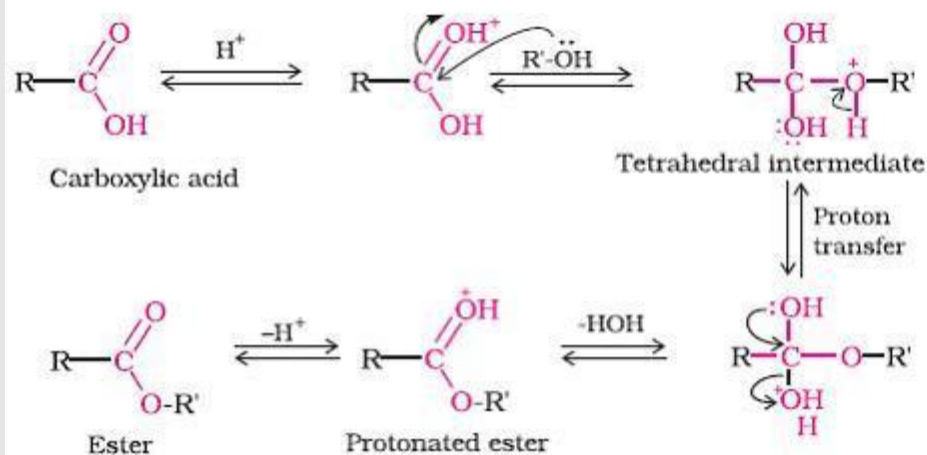
Question 13
What happens when the Ethanoic acid is reduced by Hydriodic acid and red Phosphorous at 423 K?

Ans.

Ethanoic acid is reduced to Ethane when treated with red Phosphorus and Hydriodic acid.

$$CH_3COOH \xrightarrow[423K]{Red\ P+HI} CH_3CH_3 + 2H_2O$$

Ethanoic acid → Ethane
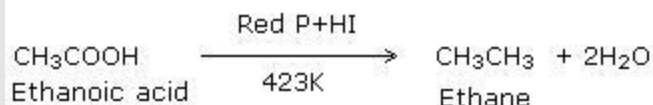
Question 14

What happens when Acetic acid is heated with Ethyl alcohol in presence of conc. H_2SO_4?

Ans.

When Acetic acid is heated with Ethyl alcohol in presence of conc. H_2SO_4 it forms Ethyl acetate.

$$CH_3COOH + C_2H_5OH \xrightarrow{Conc\ H_2SO_4} CH_3COOC_2H_5 + H_2O$$

Acetic acid   Ethyl alcohol   Ethyl acetate
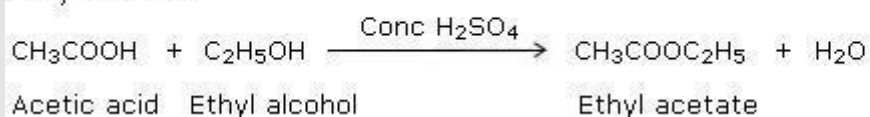
Question 15

Which one among the following CH_3COOH and CH_3CH_2OH is a stronger acid and why?

Ans.

Acetic acid is ten time stronger than Ethyl alcohol. This is because both carboxylic acid and the carboxylate anion are stabilized by resonance but neither the alcohols nor the corresponding alkoxide ions are stabilized by resonance. Alkoxide ions are less stable than alcohols and have no tendency to release a proton while the carboxylate anions are more stable than the acids and have a strong tendency to release a proton.

Stabilized by resonance

$$ROH + H_2O \longrightarrow RO^- + H_3O^+$$
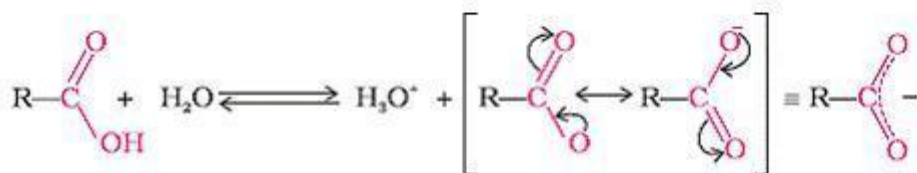
Not stabilized

PHYSICS

A charge Q is given to three capacitors C_1, C_2 and C_3 connected in parallel. Determine the charge on each.

Find an expression for the potential at a point due to a point charge Q.

How does electric potential vary from point to point due to a thin charged spherical shell? Draw a graph showing variation of potential with distance.

Derive the expression for the electric potential at any point along the axial line of an electric dipole ?

Draw a plot showing the variation of (*i*) electric field (E and (*ii*) electric potential (V) with distance r due to a point charge Q.

Two spherical conductors A and B of radii r_A and r_B ($r_A > r_B$) are given equal amounts of charge. In which direction will the charge flow when these spheres are brought in contact? Give reason for your answer.

Why are equipotential surfaces perpendicular to field lines?

What is an electrostatic shielding? What is its practical importance?

Derive the expression for the capacitance of a parallel plate capacitor having plate area A and plate separation d.

What is a capacitor? Write its two uses.

(*a*) Draw equipotential surfaces due to a point $Q > 0$. (*b*) Are these surfaces equidistant from each other? If not, explain why.

Draw equipotential surfaces and corresponding electric field lines for the: (*i*) single point charge $q < 0$ and (*ii*) uniform electric field.

If one of the plates of a parallel plate capacitor is given –Q charge, then depict the charges appearing on all the surfaces of a parallel plate capacitor.

Define 'dielectric constant' of a medium. Briefly explain why the capacitance of a parallel plate capacitor increases, on introducing a dielectric medium between the plates.

The given graph shows that variation of charge q versus potential difference V for two

capacitors C_1 and C_2. The two capacitors have same plate separation but the plate area of C_2 is double than that of C_1. Which of the lines in the graph correspond to C_1 and C_2 and why?
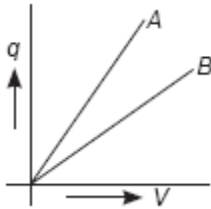
Two identical parallel plates (air) capacitors C_1 and C_2 have capacitances C each. The space between their plates is now filled with dielectrics as shown. If the two capacitors still have equal capacitance, obtain the relation between dielectric constants K, K_1 and K_2.
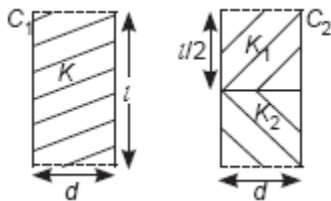
You are given an air filled parallel plate capacitor C_1. The space between its plates is now filled with slabs of dielectric constants K_1 and K_2 as shown in C_2. Find the capacitance of the capacitor C_2 if area of the plates is A and distance between the plates is d.
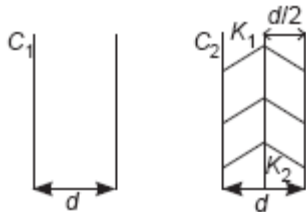
Deduce the expression for the energy stored in a parallel plate capacitor C having charges $+Q$ and $-Q$ on its plates.

Draw 3 equipotential surfaces corresponding to a field that uniformly increases in magnitude but remains constant along z-direction. How are these surfaces different from that of a constant electric field along z-direction?

Write the working principle of a parallel plate capacitor. On what factors, the capacitance of a parallel plate capacitor depends?

A slab of material of dielectric constant K has the same area as the plates of a parallel plate capacitor but has thickness $\frac{1}{2}d$, where d is the separation between the plates. Find the expression for the capacitance when the slab is inserted between the plates.

Derive an expression for the potential energy of an electric dipole of dipole moment $\vec{P}$ in an

electric field $\vec{E}$.

There is a point charge Q at a distance $\dfrac{R}{2}$ from the centre of a circle of radius R. Another point charge q is to be moved from A to B, where A and B are two points on the circle diametrically opposite to each other. How
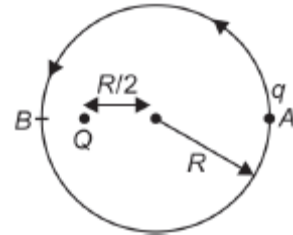
much work is done by the electrostatic force exerted by Q on q?

Can we create an electric field in which all the lines of force are parallel but their density increases continuously in a direction perpendicular to the lines of force?

What is the net capacitance between A and B of this combination?
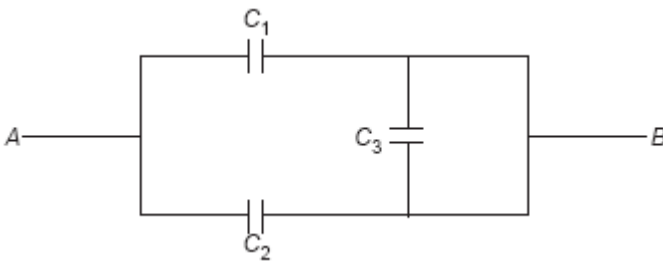
Figure shows a sheet of aluminium foil of negligible thickness placed between the plates of a capacitor. How will its capacitance be affected if (i) the foil is electrically insulated and (ii) the foil is connected to the upper plate with a conducting wire?
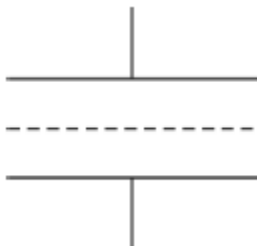
Let two conducting spheres of radii r_1 and r_2 be joined by a thin wire and a total charge q be given to them. Prove that the charges on the spheres will be in the ratio of their radii.

Why is the dielectric constant of conductors taken as ∞?

The energy of a capacitor varying with its capacitance is shown by two graphs (i) and (ii). Find in

which of the graphs: (a) charge is constant, and (b) potential difference is constant.

(i)   (ii)
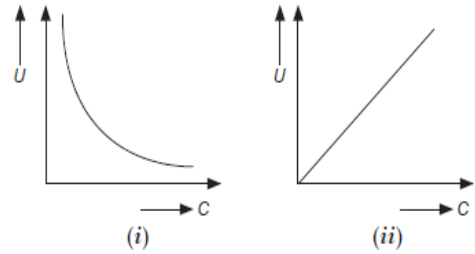
How much work is required in turning an electric dipole of dipole moment $\vec{P}$ from its position of stable equilibrium to its position of unstable equilibrium in a uniform electrostatic field $\vec{E}$?

Two point charges 2µC and –2µC are placed at points A and B, 6 cm apart. (i) Draw the equipotential surfaces of the system. (ii) Why do the equipotential surfaces get closer to each other near the point charges?

Two uniformly large parallel thin plates having charge densities +σ and –σ are kept in the X-Z plane at a distance d apart. Sketch an equipotential surface due to electric field between the plates. If a particle of mass m and charge –q remains stationary between the plates, what is the magnitude and direction of this field?

A graph is drawn between some physical quantity x and r as shown below, where r is the distance from the centre of a charged conducting sphere.
Now answer the following:
(a) Name the physical quantity x.
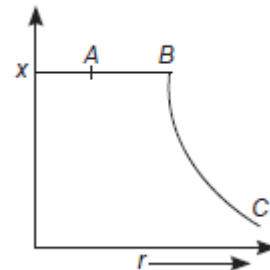
(b) At what point electric field is (i) maximum, and (ii) minimum?

HISTORY
Chapter-3

Write the Following Questions not more than 30 words (1 mark)

1. What do you mean by the term epic ?
2. Give two importance of a Manusmriti ?
3. Why and between whom the war mahabharat was fought?
4. What do you mean by term Kula and Jati?
5. What is endogamy ?
6. Why was exogamy considered desirable for the continuity of Patrilineage ?
7. Who were regarded as Mlechchhas?
8. Mention two duties laid down on Msnusmriti for Chandalad?
9. What was gotra?
10. Who were Sakas ?
11. Who was well known ruler of the Satavahana dynasty ?
12. Mention one of the most challenging episodes in Mahabharata.
13. What was Stridhana ?
14. Write the name of the Chinese Polgrims who visited Infis in the 5 th and 7th centuries.
15. Mention any two ideal occupation of Brahmanas according to Dharmashastra.
16. What was the meaning of Puta?
17. Write the meaning of Majjhima Nikaya?
18. Who called as Nishada?
19. What was the meaning of Kula ?
20. Who did the practice of Yajna?

GEOGRAPHY

Topic: Agricultural land use in India

1. Land resource is more crucial to the livelihood of the people depending on it. Justify the statement.
2. Define cropping intensity.
3. Name 3 cropping season of India.
4. On a table form show show their time and example.
5. On base of source of moisture how does farming classified??
6. Distinguish between dry land farming and wetland farming.

PSYCHOLOGY

(SHORT QUESTION TYPE I: 3 MARKS)

1. What are situational tests?
2. Write the formula to calculate IQ.
3. Can interest and aptitude help to predict success in life? Give reasons to substantiate your answer.
4. Define self.
5. Explain archetypes in relation to collective unconscious.
6. How do the source and surface traits differ?
7. What is technological intelligence?
8. Differentiate between basic anxiety and identity crisis.

(SHORT QUESTION TYPE II: 4 MARKS)

9. Explain Karen Hoeney's theory to understand personality.
10. Explain Daw-a-Person test.
11. Explain any two psychometric approaches to intelligence.
12. What are the three types of intelligences defined by Sternberg?

(LONG QUESTION: 6 MARKS)

13. According to Freud, people use various defense mechanisms. Are ego defense mechanisms effective? Using appropriate examples explain Freud's list of defense mechanism.
14. Describe various stages of psychosexual development. Explain the concept of fixation and regression with the help of examples.
15. Elucidate the differences in various areas of functioning at different levels of mental retardation.

LEGAL STUDIES

Q1. What are the essential conditions to constitute Lis-pendens?

Q2. A sells his house for Rs. 2 lakhs to B. A is the seller and B is the buyer. Rs. 2 lakhs is the consideration, which is money. What is such transaction called and what are its essential essentials?

Q3. Mention the different rights and liabilities of the parties in a valid Lease?

Q4. What do you understand by the term sub-Lease?

Q5. Differentiate between Sale, exchange and Gift.

CHAPTER 9 GLOBALISATION

Very Short Answer Type Questions [2 Marks]

Q1."Welfare State is getting replaced by market." Analyse the reason for this change.

Q2. Which factors have contributed to the process of globalisation?

Q3. 'Globalisation is a multidimensional concept". Justify the statement.

Q4. Mention any four political consequences of globalisation

Q5. Explain any four consequences of globalisation.

Q6. Does globalisation lead to 'cultural homogenisation' or 'cultural heterogenization' or both? Justify

Q 7 What is the impact of globalisation on state's sovereignty?

Q8. Explain globalisation. How has technology contributed in promoting globalisation?

Passage Based Questions [5 Marks]

1. Read the following passage carefully and answer the questions:

At the most simple level, globalisation results in an erosion of state capacity, that is, the ability of government to do what they do. All over the world, the old 'welfare state' is now giving way to a more minimalist state that performs certain core functions such as the maintenance of law and order and the security of its citizens. However, it withdraws from many of its earlier welfare functions directed at economic and social well-being. In place of the welfare state, it is the market that becomes the prime determinant of economic and social priorities. The entry and the increased role of multinational companies all over the world leads to a reduction in the capacity of governments to take decisions on their own. At the same time, globalisation does not always reduce state capacity. The primacy of the state continues to be the unchallenged basis of political community. The old jealousies and rivalries between countries have not ceased to matter in world politics. The state continues to discharge its essential functions (law and order, national security) and consciously withdraws from certain domains from which it wishes to. States continue to be important. Indeed, in some respects state capacity has received a boost as a consequence of globalisation, with enhanced technologies available at the disposal of the state to collect information about its citizens. With this information, the state is better able to rule, not less able. Thus, states become more powerful than they were earlier as an outcome of the new technology.

Questions

1. How does globalisation effect on state capacity?
2. How have multinational companies effected the states?
3. How does the old welfare state react to globalisation?

2. Read the following passage carefully and answer the questions:

Advocates of economic globalisation argue that it generates greater economic growth and well-being for larger sections of the population when there is de-regulation. Greater trade among countries allows each economy to do what it does best. This would benefit the whole world. They also argue that economic globalisation is inevitable and it is not wise to resist the march of history. More moderate supporters of globalisation say that globalisation provides a challenge that can be responded to intelligently without accepting it uncritically. What, however, cannot be denied is the increased momentum towards inter-dependence and integration between governments, businesses, and ordinary people in different parts of the world as a result of globalisation.

Questions

1. What is economic globalisation?
2. How does economic globalisation benefit the whole world?
3. How do the moderate supporters of globalisation view it?

Picture Based Questions[5 Marks]

1. Study the picture given below and answer the questions that follow:

Questions

1. What does the cartoon comment?
2. What is referred under the title 'Yesterday'?
3. What message does the title 'Today' conveys?

OPTIONAL II
HINDI

Question 1:

अगहन मास की विशेषता बताते हुए विरहिणी (नागमती) की व्यथा-कथा का चित्रण अपने शब्दों में कीजिए।

ANSWER:

अगहन मास में दिन छोटे हो जाते हैं और रातें बड़ी हो जाती हैं। नागमती के लिए यह परिवर्तन बहुत कष्टप्रद है क्योंकि दिन तो जैसे-तैसे कट जाता है परन्तु रात नहीं कट पाती। रात में उसे रह-रहकर प्रिय की याद सताती है। वह घर में अकेली होती है। अतः यह स्थिति उसे वियोग के चरम तक ले जाती है। उसकी स्थिति ऐसे ही है जैसे दीपक की बाती। दीपक की बाती पूरी रात जलती रहती है। नागमती भी वैसी ही विरहाग्नि में जल रही है। अगहन मास की ठंड जमाने वाली होती है। नागमती के हृदय को तो यह ठंड कंपा रही है। वह सोचती है कि यदि उसके पति उसके साथ होते, तो वह इस ठंड को भी झेल जाती। परन्तु उनकी अनुपस्थिति इसके बल को दोगुना किए जा रही है। वह यही सोचकर व्याकुल हो रही है। स्त्रियाँ पति की उपस्थिति में बनाव-शिंगार करने में लगी रहती हैं परन्तु नागमति के लिए यह बनाव-शिंगार कष्टप्रद लग रहा है। उसके पति परदेश को गए हैं। अतः वह किसके लिए यह बनाव-श्रृंगार करे। लोग शीत की मार से बचने के लिए स्थान-स्थान पर आग जलाकर बैठे रहते हैं। परन्तु नागमती को तो विरह रूपी अग्नि अंदर-ही-अंदर जला रही है। नागमती के लिए अगहन मास भी कुछ राहत नहीं देता है क्योंकि बाहर कितनी भी ठंड क्यों न हो परन्तु विरहाग्नि अंदर रहकर उसे जला ही देती है।

Page No 51:

Question 2:

'जीयत खाइ मुएँ नहिं छाँड़ा' पंक्ति के संदर्भ में नायिका की विरह-दशा का वर्णन अपने शब्दों में कीजिए।

ANSWER:

नागमति का पति परदेश गया हुआ है। पति की अनुपस्थिति उसे भयंकर लगती है। वह पति के वियोग में जल रही है। एक स्थान पर पति के वियोग से उत्पन्न विरह को उसने बाज़ रूप में चित्रित किया है। जिस तरह बाज़ अपने शिकार को नोच-नोचकर खा जाता है, वैसे ही विरह रूपी बाज़ नागमती को जीवित नोच-नोचकर खा रहा है। उसे लगता है, जैसे विरह रूपी बाज़ उसे अपना शिकार बनाने के लिए नज़र गड़ाए बैठा है। जो उचित अवसर मिलते ही उसे नोचने लगता है। जब तक यह बाज़ उसे पूर्ण रूप से खा नहीं लेगा, तब तक वह उसका पीछा नहीं छोड़ने वाला है। भाव यह है कि नागमति के लिए पति से अलग होने की स्थिति बहुत ही कष्टप्रद है। विरहाग्नि इतनी उग्र होती जा रही है कि इसका विपरीत असर प्रत्यक्ष रूप में न दिखाई दे परन्तु अप्रत्यक्ष रूप में वह उसे लील रहा है। वह चाहकर भी स्वयं को सांत्वना नहीं दे पा रही है। बस इस अग्नि में अकेले जल रही है।

Question 3:
माघ महीने में विरहिणी को क्या अनुभूति होती है?

ANSWER:
माघ के महीने में ठंड अपने विकराल रूप में विद्यमान होती है। चारों और पाला अर्थात कोहरा छाने लगता है। विरहिणी के लिए यह स्थिति भी कम कष्टप्रद नहीं है। इसमें विरह की पीड़ा मौत के समान होती है। यदि पति की अनुपस्थिति इसी तरह रही, तो माघ मास की ठंड उसे अपने साथ ही ले जाकर मानेगी। यह मास उसके मन में काम की भावना को जागृत करता है। वह प्रियतम से मिलने को व्याकुल हो उठती है। इसी बीच इस मास में होने वाली वर्षा उसकी व्याकुलता को और भी बड़ा देती है। वर्षा में भीगी हुई नागमती को गीले वस्त्र तथा आभूषण तक तीर के समान चुभ रहे हैं। उसे बनाव-श्रृंगार तक भाता नहीं है। प्रियतम के विरह में तड़पते हुए वह सूख कर कांटा हो रही है। उससे ऐसा लगता है इस विरह में वह इस प्रकार जल रही है कि उसका शरीर राख के समान उड़ ही जाएगा।

Question 4:
वृक्षों से पत्तियाँ तथा वनों से ढाँखें किस माह में गिरते हैं? इससे विरहिणी का क्या संबंध है?

ANSWER:
फागुन मास के समय वृक्षों से पत्तियाँ तथा वनों से ढाँखें गिरते हैं। विरहिणी के लिए यह माह बहुत ही दुख देने वाला है। चारों ओर गिरती पत्तियाँ उसे अपनी टूटती आशा के समान प्रतीत हो रही हैं। हर एक गिरता पत्ता उसके मन में विद्यमान आशा को धूमिल कर रहा है कि उसके प्रियतम शीघ्र ही आएँगे। पत्तों का पीला रंग उसके शरीर की स्थिति को दर्शा रहा है। जैसे अपने कार्यकाल समाप्त हो जाने पर पत्ते पीले रंग के हो जाते हैं, वैसे ही प्रियतम के विरह में जल रही नायिका का रंग पीला पड़ रहा है। अतः फागुन मास उसे दुख को शांत करने के स्थान पर बड़ा ही रहा है। फागुन के समाप्त होते-होते वृक्षों में नई कोपलों तथा फूल आकर उसमें पुनः जान डालेंगे। परन्तु नागमती के जीवन में सुख का पुनः आगमन कब होगा यह कहना संभव नहीं है।
Question 5:
निम्नलिखित पंक्तियों की व्याख्या कीजिए-

(क) पिय सौं कहेहु सँदेसड़ा, ऐ भँवरा ऐ काग।

सो धनि बिरहें जरि मुई, तेहिक धुआँ हम लाग।

(ख) रकत ढरा माँसू गरा, हाड़ भए सब संख।
धिन सारस होई रिरि मुई, आइ समेटहु पंख।

(ग) तुम्ह बिनु कंता धनि हरुई, तन तिनुवर भा डोल।
तेहि पर बिरह जराई कै, चहै उड़ावा झोल।।

(घ) यह तन जारौं छार कै, कहौं कि पवन उड़ाउ।
मकु तेहि मारग होई परौं, कंत धरैं जहँ पाउ।।

ANSWER:

(क) दुखी नागमती भौरों तथा कौए से अपने प्रियतम के पास संदेशा ले जाने को कहती है। उसके अनुसार वे उसके विरह का हाल शीघ्र ही जाकर उसके प्रियतम को बताएँ। प्रियतम के विरह में नागमती कितने गहन दुख भोग रही है इसका पता प्रियतम को अवश्य लगा चाहिए। अतः वह उन्हें संबोधित करते हुए कहती है कि तुम दोनों वहाँ जाकर प्रियतम को मेरी स्थिति बताना और कहना की तुम्हारी पत्नी विरह रूपी अग्नि में जलते हुए मर गई है। उस अग्नि से उठने वाले काले धुएँ के कारण हमारा रंग भी काला पड़ गया है।

(ख) प्रस्तुत पंक्तियों में नागमती अपने प्रियतम को अपनी विरह रूपी दशा का वर्णन कर रही है। वह कहती है कि हे प्रियतम! तुमसे अलग होने पर मेरी दशा बहुत ही खराब हो गई है। मैं तुम्हारे वियोग में इतना रोई हूँ कि मेरी आँखों से आँसू रूप में सारा रक्त बाहर निकल गया है। इसी तरह तड़पते हुए मेरा सारा माँस भी गल गया है और मेरी हड्डियाँ शंख के जैसे श्वेत दिखाई दे रही है। वह आगे कहती है कि तुम्हारा नाम लेते-लेते में सारसों की जोड़ी के समान तड़प-तड़पकर मर गई हूँ। इस समय मैं मृत्यु के समीप हूँ। अतः तुम शीघ्र आकर मेरे पंखों को समेट लो।

(ग) प्रस्तुत पंक्तियों में नागमती कहती है कि हे प्रियतम! मैं तुम्हारे वियोग में सूखती जा रही हूँ। मेरी स्थिति तिनके के समान हो गई है। अर्थात में कमज़ोर हो गई हूँ। मैं इतनी दुर्बल हो गई हूँ कि मेरा शरीर वृक्ष के समान हिलने लगता है। अर्थात जिस प्रकार वृक्ष हवा के झोंके से ही हिलने लगता है, इसी प्रकार में कमज़ोर होने के कारण हिल जाती हूँ। इस पर भी यह विरहाग्नि मुझे राख बनाने को व्यग्र है तथा मेरे तन की राख को भी उड़ा दिए जा रहा है।

(घ) नागमती अपने मन के दुख को व्यक्त करते हुए कहती है कि मैं स्वयं के तन को विरहाग्नि में जलाकर भस्म कर देना चाहती हूँ। इस तरह मेरा शरीर राख का रूप धारण कर लेगा और पवन मेरे शरीर को उड़ाकर मेरे प्रियतम के रास्ते में बिखेर देगी। इस प्रकार मार्ग में चलते हुए अपने पति का में राख रूप में स्पर्श पा जाऊँगी।

Page No 52:
Question 6:
प्रथम दो छंदों में से अलंकार छाँटकर लिखिए और उनसे उत्पन्न काव्य-सौंदर्य पर टिप्पणी कीजिए।

ANSWER:
पहला पद- यह दुःख दगध न जानै कंतू। जोबन जरम करै भसमंतू।

प्रस्तुत पद की भाषा अवधी। शब्दों का इतना सटीक वर्णन किया है कि भाषा प्रवाहमयी और गेयता के गुणों से भरी है। भाषा सरल और सहज है। इसमें 'दुःख दगध' तथा 'जोबर जर' में अनुप्रास अलंकार है। वियोग से उत्पन्न विरह को बहुत मार्मिक रूप में वर्णन किया गया है। विरहणि के दुख की तीव्रता पूरे पद में दिखाई देती है।

दूसरा पद- बिरह बाढ़ि भा दारुन सीऊ। कँपि-कँपि मरौं लेहि हरि जीऊ।

प्रस्तुत पद की भाषा अवधी है। शब्दों का इतना सटीक वर्णन किया गया है कि भाषा प्रवाहमयी और गेयता के गुणों से भरी है। भाषा सरल और सहज है। 'बिरह बाढ़ि' में अनुप्रास अलंकार है। 'कँपि-कँपि' में पुनरुक्ति प्रकाश अलंकार है। पूस के माह में ठंड की मार का सजीव वर्णन किया गया है।

Page No 52:

Question 2:

किसी अन्य कवि द्वारा रचित विरह वर्णन की दो कविताएँ चुनकर लिखिए और अपने अध्यापक को दिखाइए।

ANSWER:

पदः मीराबाई

तोसों लाग्यो नेह रे प्यारे नागर नंदकुमार।
मुरली तेरी मन हरह्यौ बिसरह्यौ घर ब्यौहार।।
जबतैं श्रवननि धुनि परी घर अंगणा न सुहाय।
पारधि ज्यूं चूकै नहीं म्रिगी बेधि द आय।।
पानी पीर न जान ज्यों मीन तडफ मरि जाए।
रसिक मधुपके मरमको नहीं समुझत कमल सुभाय।।
दीपक को जो दया नहिं उडि उडि मरत पंतग।
मीरा प्रमु गिरधर मिले जैसे पाणी मिलि गयौ रंग।।

पदः मीराबाई

निसि दिन बरषत नैन हमारे।
सदा रहति बरषा रितु हम पर जब तें स्याम सिधारे।।
द्रग अंजन न रहत निसि बासर कर कपोल भए कारे।
कंचुकि पद सूखत नहिं कबहूं उर बिच बहत पनारे।।
आंसू सलिल भई सब काया पल न जात रिस टारे।।
सूरदास प्रभु यहै परेखो गोकुल काहें बिसारे।।

PHYSICAL EDUCATION
YOGA AND LIFESTYLE

Multiple Choice Questions

Q1. The word yoga was first mentioned in

    (a) Bhagvad Gita   (b) Rig Veda   (c) Yajura Veda   (d) Upanishads

Q2. International Yoga Day is celebrated on

    (a) July 21
    (b) January 1
    (c) June 21
    (d) August 15

Q3. Obesity can be checked by the regular practice of certain asanas. Among the most beneficial is

    (a) Vajrasana   (b) Shavasana   (c) Bhujangasana   (d) Pawanmuktasana

Q4. Trikonasana must not be practised by those suffering from

    (a) Diabetes   (b) Lower backache   (c) Asthma   (d) Obesity

Q5. Occupational Asthma is caused by

    (a) Cold air
    (b) Dry air
    (c) Pollen
    (d) Dust and smoke

Short Answer Type Questions

Q1. What is obesity? How can we know if we are obese?

Q2. Explain Bhujangasana and its procedure.

Q3. How can yoga help in preventing diabetes?

Q4. Discuss any three methods to prevent asthma.

Q5. What asanas are used to treat backache?

Long Answer Type Questions

Q1. What are lifestyle diseases? How can we prevent them?

Q2. Explain the benefits, contraindications and techniques of performing Paschimottanasana.

Q3. What is hypertension? Discuss the benefits and contraindications of Vajrasana and Ardhachakrasana.

Q4. Back pain is an impediment. Explain how yoga can help and describe any one asana in detail to get rid of backache.

Q5. Explain the role of yogasanas in asthma and explain any two asanas in detail

PAINTING

CHAPTER 2 – THE RAJASTHANI SCHOOL OF MINIATURE PAINTING
(SUB-SCHOOLS)

Q.1) Write the titles of any five Rajasthani miniature painting.

Q.2) Mention the names of any five sub-schools of Rajasthani painting.

Q.3) Clarify the specialities of miniature paintings of Jodhpur sub-school of Rajasthani painting.

Q.4) Describe the following briefly:
  a.) Sub-school of Bikaner painting.
  b.) Sub-school of Mewar painting.
  c.) Sub-school of Kishangarh painting.
  d.) Sub-school of Bundi painting.

WORKSHEET
XII
SQL (CS & IP)

1	What is DDL and DML? Give one command of each.
2	Which command is used to add new column in existing table?
3	Which clause is used to search for NULL values in any column?
4	Which command is used to see information like name of columns, data type, size etc. ?
5	Which clause is used for pattern matching? What are the 2 main characters used for matching the pattern?
6	Which clause is used to see the output of query in ascending or descending order?
7	Which clause is used to eliminate the duplicate rows from output?
8	What is the minimum number of column required in MySQL to create table?
9	Which command is used to remove the table from database?
10	Which command is used to add new record in table?
11	Which option of ORDER BY clause is used to arrange the output in descending order?
12	Which command is used to change the existing information of table?
13	Raj is a database programmer, He has to write the query from EMPLOYEE table to search for the employee whose name begins from letter „R" , for this he has written the query as: SELECT * FROM EMPLOYEE WHERE NAME=" R%" ; But the query is not producing the correct output, help Raj and correct the query so that he gets the desired output.
14	Raj is a database programmer, He has to write the query from EMPLOYEE table to search for the employee who are not getting any commission, for this he has written the query as: SELECT * FROM EMPLOYEE WHERE commission=null; But the query is not producing the correct output, help Raj and correct the query so that he gets the desired output.
15	Raj is a database programmer, He has to write the query from EMPLOYEE table to search for the employee who are working in „Sales' or „IT' department, for this he has written the query as: SELECT * FROM EMPLOYEE WHERE department=" Sales" or „IT" ; But the query is not producing the correct output, help Raj and correct the query so that he gets the desired output.
16	The following query is producing an error. Identify the error and also write the correct query. SELECT * FROM EMP ORDER BY NAME WHERE SALARY>=5000;

17	If Table Sales contains 5 records and Raj executed the following queries; find out the output of both the query.
	    (i) Select 100+200 from dual;
	    (ii) Select 100+200 from Sales;

18	What is the difference between Equi-Join and Natural Join?

19	Observe the given Table TEACHER and give the output of question (i) and (ii)
	
	    (i) SELECT TEACHER_NAME,DOJ FROM TEACHER WHERE TEACHER_NAME LIKE „%I%'
	    (ii) SELECT * FROM TEACHER WHERE DOJ LIKE „%-09-%';

20	Which SQL function is used to get the average value of any column?
21	What is the difference between COUNT() and COUNT(*) function
22	What is the full form of SQL?

23	Query to delete all record of table without deleting the table:
	    a. DELETE TABLE TABL_NAME
	    b. DELETE FROM TABLE_NAME

TEACHER_CODE	TEACHER_NAME	DOJ
T001	ANAND	2001-01-30
T002	AMIT	2007-09-05
T003	ANKIT	2007-09-20
T004	BALBIR	2010-02-15
T005	JASBIR	2011-01-20
T006	KULBIR	2008-07-11

	c. DROP TABLE TABLE_NAME
	d. DELETE TABLE FROM TABLE_NAME
24	Identify the wrong statement about UPDATE command
	a. If WHERE clause is missing all the record in table will be updated
	b. Only one record can be updated at a time using WHERE clause
	c. Multiple records can be updated at a time using WHERE clause
	d. None of the above
25	Identify the correct statement(s) to drop a column from table
	a. DELETE COLUMN COLUMN_NAME
	b. DROP COLUMN COLUMN_NAME
	c. ALTER TABLE TABLE_NAME DROP COLUMN COLUMN_NAME
	d. ALTER TABLE TABLE_NAME DROP COLUMN_NAME
26	Suppose a table BOOK contain columns (BNO, BNAME, AUTHOR, PUBLISHER), Raj is assigned a task to see the list of publishers, when he executed the query as: SELECT PUBLISHER FROM BOOK; He noticed that the same publisher name is repeated in query output. What could be possible solution to get publisher name uniquely? Rewrite the following query to fetch unique publisher names from table.
27	**HOTS** Consider a database table T containing two columns X and Y each of type integer. After the creation of the table, one record (X=1, Y=1) is inserted in the table. Let MX and My denote the respective maximum values of X and Y among all records in the table at any point in time. Using MX and MY, new records are inserted in the table 128 times with X and Y values being MX+1, 2*MY+1 respectively. It may be noted that each time after the insertion, values of MX and MY change. What will be the output of the following SQL query after the steps mentioned above are carried out? SELECT Y FROM T WHERE X = 7 A. 127 B. 255 C. 129 D. 257
28	Which SQL function is used to find the highest and lowest value of numeric and date type column?
29	What is the default order of sorting using ORDER BY?
30	What is the difference between CHAR and VARCHAR?
31	Write SQL queries for (i) to (iv) and find outputs for SQL queries (v) to (viii) which are based on tables

TABLE : ACCOUNT

ANO	ANAME	ADDRESS
101	Nirja Singh	Bangalore
102	Rohan Gupta	Chennai
103	Ali Reza	Hyderabad
104	Rishabh Jain	Chennai
105	Simran Kaur	Chandigarh

TABLE: TRANSACT

TRNO	ANO	AMOUNT	TYPE	DOT
T001	101	2500	Withdraw	2017-12-21
T002	103	3000	Deposit	2017-06-01
T003	102	2000	Withdraw	2017-05-12
T004	103	1000	Deposit	2017-10-22
T005	102	12000	Deposit	2017-11-06

(i) To display details of all transactions of TYPE Withdraw from TRANSACT table
(ii) To display ANO and AMOUNT of all Deposit and Withdrawals done in month of „May"
2017 from table TRANSACT
(iii) To display first date of transaction (DOT) from table TRANSACT for Account having
ANO as 102
(iv) To display ANO, ANAME, AMOUNT and DOT of those persons from ACCOUNT and
TRANSACT table who have done transaction less than or equal to 3000
(v) SELECT ANO, ANAME FROM ACCOUNT
WHERE ADDRESS NOT IN ('CHENNAI', 'BANGALORE');
(vi) SELECT DISTINCT ANO FROM TRANSACT
(vii) SELECT ANO, COUNT(*), MIN(AMOUNT) FROM TRANSACT
GROUP BY ANO HAVING COUNT(*)> 1
(viii) SELECT COUNT(*), SUM(AMOUNT) FROM TRANSACT
WHERE DOT <= '2017-10-01'

| 32 | Consider the following tables EMP and SALGRADE, write the query for (i) to (vi) and output for (vii) to (x) |

TABLE: EMPLOYEE

ECODE	NAME	DESIG	SGRADE	DOJ	DOB
101	Vikrant	Executive	S03	2003-03-23	1980-01-13
102	Ravi	Head-IT	S02	2010-02-12	1987-07-22
103	John Cena	Receptionist	S03	2009-06-24	1983-02-24
105	Azhar Ansari	GM	S02	2009-08-11	1984-03-03
108	Priyam Sen	CEO	S01	2004-12-29	1982-01-19

TABLE: SALGRADE

S01	56000	18000
S02	32000	12000
S03	24000	8000

(i) To display details of all employee in descending order of their DOJ
(ii) To display NAME AND DESIG of those employees whose sgrade is either „S02" or „S03"
(iii) To display NAME, DESIG, SGRADE of those employee who joinded in the year 2009
(iv) To display all SGRADE, ANNUAL_SALARY from table SALGRADE [where ANNUAL_SALARY = SALARY*12]
(v) To display number of employee working in each SALGRADE from table EMPLOYEE
(vi) To display NAME, DESIG, SALARY, HRA from tables EMPLOYEE and SALGRADE where SALARY is less than 50000
(vii) Select MIN(DOJ), MAX(DOB) from employee;
(viii) Select SGrade,Salary+HRA from SalGrade where Sgrade=„ S02"
(ix) Select count(distinct sgrade) from employee
(x) Select sum(salary), avg(salary) from salgrade

33 Write SQL queries for (i) to (iv) and write outputs for SQL queries (v) to (viii), which are based on the table given below:

Table: TRAINS

TNO	TNAME	START	END
11096	Ahimsa Express	Pune Junction	Ahmedabad Junction
12015	Ajmer Shatabdi	New Delhi	Ajmer Junction
1651	Pune Hbj Special	Pune Junction	Habibganj
13005	Amritsar Mail	Howrah Junction	Amritsar Junction
12002	Bhopal Shatabdi	New Delhi	Habibganj
12417	Prayag Raj Express	Allahabad Junction	New Delhi
14673	Shaheed Express	Jaynagar	Amritsar Junction
12314	Sealdah Rajdhani	New Delhi	Sealdah
12498	Shane Punjab	Amritsar Junction	New Delhi
12451	Shram Shakti Express	Kanpur Central	New Delhi
12030	Swarna Shatabdi	Amritsar Junction	New Delhi

Table: PASSENGERS

PNR	TNO	PNAME	GENDER	AGE	TRAVELDATE
P001	13005	R N AGRAWAL	MALE	45	2018-12-25
P002	12015	P TIWARY	MALE	28	2018-11-10
P003	12015	S TIWARY	FEMALE	22	2018-11-10
P004	12030	S K SAXENA	MALE	42	2018-10-12
P005	12030	S SAXENA	FEMALE	35	2018-10-12
P006	12030	P SAXENA	FEMALE	12	2018-10-12
P007	13005	N S SINGH	MALE	52	2018-05-09
P008	12030	J K SHARMA	MALE	65	2018-05-09
P009	12030	R SHARMA	FEMALE	58	2018-05-09

(i) To display details of all Trains which starts from New Delhi
(ii) To display PNR, PNAME, GENDER and AGEof all passengers whose AGE is below 50
(iii) To display total numbers of MALE and FEMALE passengers
(iv) To display of all passengers travelling in trains whose TNO is 12015
(v) SELECT MAX(TRAVELDATE),MIN(TRAVELDATE) FROM PASSENGERS WHERE GENDER=" FEMALE" ;
(vi) SELECT END, COUNT(*) FROM TRINS GROUP BY END HAVING COUNT(*)>1;
(vii) SELECT DISTINCT TRAVELDATE FROM PASSENGERS;
(viii) SELECT TNAME, PNAME FROM TRAINS T, PASSENGERS P WHERE T.NO=P.TNO AND AGE BETWEEN 50 AND 60

34	Consider the table SHOPPE and ACCESSORIES, write the query for (i) to (v) and output for (vi) to (x)

Table : SHOPPE

Id	SName	Area
S001	ABC Computronics	CP
S002	All Infotech Media	GK II
S003	Tech Shoppe	CP
S004	Geeks Tecno Soft	Nehru Place
S005	Hitech Tech Store	Nehru Place

Table : ACCESSORIES

No	Name	Price	Id
A01	Mother Board	12000	S01
A02	Hard Disk	5000	S01
A03	Keyboard	500	S02
A04	Mouse	300	S01
A05	Mother Board	13000	S02
A06	Keyboard	400	S03
A07	LCD	6000	S04
T08	LCD	5500	S05
T09	Mouse	350	S05
T10	Hard Disk	4500	S03

(i) To display Name and Price of all the Accessories in descending order of their Price

(ii) To display Id and Sname of all the Shoppe location in „Nehru Place'

(iii) To display Name, Minimum and Maximum Price of each Name from ACCESSORIES table

(iv) To display Name, Price of all Accessories and their respective SName from table SHOPPE and ACCESSORIES where Price is 5000 or more.

(v) To display all details of accessories where name contains word „Board" ;

(vi) SELECT DISTINCT NAME FROM ACCESSORIES WHERE PRICE>=50000;

(vii) SELECT AREA,COUNT(*) FROM SHOPPE GROUP BY AREA;

(viii) SELECT AVG(PRICE), MAX(PRICE) FROM ACCESSORIES WHERE PRICE>=10000;

(ix) SELECT NAME, PRICE*.05 DISCOUNT FROM ACCESSORIES WHERE ID IN („S02" ," S03")

(x) SELECT * FROM SHOPPE S, ACCESSORIES A WHERE S.ID = A.ID AND PRICE>=10000;

35	**a) In a database there are two tables : Write MYSQL queries for (i) to (iii)**

Table : Item

ICode	IName	Price	Color	VCode
S001	Mobile Phones	30000	Silver	P01
S002	Refrigerator	20000	Cherry	P02
S003	TV	45000	Black	P03
S004	Washing Machine	12000	White	P04
S005	Air Conditioner	50000	White	P05

Table : Vendor

VCode	VName
P01	Rahul
P02	Mukesh
P03	Rohan
P04	Kapil

(i) To display ICode, IName and VName of all the vendors, who manufacture "Refgigerator".
(ii) To display IName, ICode, VName and price of all the products whose price >=23000
(iii) To display Vname and IName manufactured by vendor whose code is "P04".

b) What will be the output of the following-
1. Select Round(1449.58,-2);
2. Select Round(7.5789,3);
3. Select Substr(" Hello Rahul",3,8);
4. Select Dayofmonth("2020-10-24");

IP ONLY

36	In a database there are two tables : Write MYSQL queries for (i) to (vi)

Table : Doctors

DocID	DocName	Department	NoofOpdDays
101	J K Mishra	Ortho	3
102	Mahesh tripathi	ENT	4
103	Ravi Kumar	Neuro	5
104	Mukesh Jain	Physio	3

Table : Patients

PatNo	PatName	Department	DocId
1	Payal	ENT	102
2	Naveen	Ortho	101
3	Rakesh	Neuro	103
4	Atul	Physio	104

(i) To display PatNo, PatName and corresponding DocName for each patient.
(ii) To display the list of all doctors whose NoofOpdDays are more than 2..
(iii) To display DocName, Department and PatName and DocId from both the tables.
(iv) To display total no of different departments from Patients table.

37	Given the Table "BANK" with records, Give the output of given queries –

NAME
SACHIN
RAMESH
DINESH
VIKAASH
RAJU
AMRITESH

i.   Select * from BANK where Name Like „%ES%" ;

ii.   Select * from BANK where Name Like „ _____SH'

38	Rajesh a database developer at StoreIndia wants to search the record of those employees whose name starts from „R' and they have not allotted any project, for this he has written the following query-
	Select * from Employee where Name = 'R%' and Project=Null;
	But the query is not producing the correct output. Rewrite the query after correcting the errors

39	Considering the Visitor table data, write the query for (i) to (iv) and output for (v) to (viii)

VisitorID	VisitorName	Gender	ComingFrom	AmountPaid
1	Suman	F	Kanpur	2500
2	Indu	F	Lucknow	3000
3	Rachana	F	Haryana	2000
4	Vikram	M	Kanpur	4000
5	Rajesh	M	Kanpur	3000
6	Suresh	M	Allahabad	3600
7	Dinesh	M	Lucknow	
8	Shikha	F	Varanasi	5000

(i) Write a query to display VisitorName, Coming From details of Female Visitors with Amount Paid more than 3000

(ii) Write a query to display all coming from location uniquely

(iii) Write a query to insert the following values-
    7,„Shilpa" ," F" ," Lucknow" ,3000

(iv) Write a query to display all details of visitors in order of their AmountPaid from highest to lowest

(v) Select VisitorName from Visitor where Gender=" M" ;

(vi) Select AmountPaid+200 from Visitor where VisitorID=6;

(vii) Select Sum(AmountPaid) from Visitor where comingFrom=" Kanpur" ;

(viii) Select Count(VisitorName) from Visitor where AmountPaid=NULL;

40	Write a MySQL query to create the given table (MEMBER)

Column name	Datatype	Size
ID	Char	6
Name	Varchar	30
Fee	Int	10
DOJ	Date	

41	What is the Difference between ALTER Table command and UPDATE command?
42	(i) Sanjay was deleting the record of empno=1234, but at the time of execution of command he forgot to add condition empno=1234, what will be the effect of delete command in this case? (ii) Sameer is executing the query to fetch the records of employee who are getting salary between 4000 to 8000, he executed the query as - Select * from employee where salary between 4000 to 8000; But he is not getting the correct output, Rewrite the correct query.
43	Write MYSQL command to see the list of tables in current database
44	Sunil decides to delete a PhoneNo column from a MySQL Table (student) after insert the data into the table. Write the command to delete that particular column in student table.
45	A table Employee contains 5 Rows and 4 Columns and another table PROJECT contains 5 Rows and 3 Columns. How many rows and columns will be there if we obtain Cartesian product of these two tables?
46	Ranjeet created a table named student, He wants to see those students whose name ending with p. He wrote a query- SELECT * FROM student WHERE name="p%"; But the query is not producing the desired output, Help Ranjeet to run the query by removing the errors from the query and rewriting it.

| 47 | Consider the following EMPLOYEE table write MYSQL command for (i) to (iv) and Outputs for (v) to (viii) |

EMPNO	ENAME	DEPT	SALARY	COMM
1	ANKIT	HR	20000	1200
2	SUJEET	ACCOUNTS	24000	
3	VIJAY	HR	28000	2000
4	NITIN	SALES	18000	3000
5	VIKRAM	SALES	22000	1700

(i)   To display the name of employees starting from „V' in ascending order of their salary

(ii)   To display the details of all SALES dept employee who are earning salary more than 20000

(iii)   To count distinct department from the table

(iv)   Change the salary of NITIN from 18000 to 20000

(v)   To insert a new row in the table Employee
      „6" , „SUMIT" ," HR" , 40000,2000

(vi)   Select AVG(COMM) from Employee

(vii)   Select ENAME,DEPT from Employee where Dept in(„HR" ," ACCOUNTS")

(viii) Select ENAME, SALARY+100 NEWSAL from Employee

---

48   Write MYSQL command to create the table ENQUIRY including its constraints

Table : ENQUIRY

Name of column	Type	Size	Constraints
visitorID	Decimal	4	Primary key
visitorName	Varchar	20	
visitorMobile	Char	10	Not null
visitorAddress	Varchar	40	

---

49   In a database there are two tables :

Table : Doctor

DocID	DocName	Specialist
D001	Vimal Jha	Cardio
D002	Sunil Bawra	Ortho
D003	Mukul Barman	Surgeon
D004	Nitesh Solanki	Skin

Table : Patient

PatID	PatName	DateAdm	DocID
P001	Kapil	10-Oct-2013	D002
P002	Susheel	01-Sep-2013	D001
P003	Wasim	15-Oct-2013	D002
P004	Sanjay	12-Oct-2013	D003
P005	Jai	17-Oct-2013	D003

Write the MySQL queries for the following :

(i)   To display PatID, PatName, and corresponding DocName of „Cardio' and „Ortho' patient

(ii)   To display DocName, PatName of those patient who are admitted before 15-Oct-2013

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50   What will be output of following Mysql Queries –

(i)   Select Round(55.698,2)

(ii)   Select mid(„examination" ,4,4)

(iii)   Select Round(4562.778,-2)

(iv)   Select length(trim(„ exam „))

IP ONLY

| 51 | 1. Write Query for the following requirements – |

Id	NAME	STIPEND	SUBJECT	AVERAGE	DIV
1	KARAN	400	PHYSICS	68	1
2	DIVAKAR	450	COMP SC	68	1
3	DIVYA	300	CHEMISTRY	62	2
4	ARUN	350	PHYSICS	63	1
5	SABINA	500	MATHS	70	1
6	JOHN	400	CHEMISTRY	55	2
7	ROBERT	250	PHYSICS	64	1
8	RUBINA	450	MATHS	NULL	NULL
9	VIKAS	500	COMP SC	62	1
10	MOHAN	300	MATHS	57	2

GUIDE

SUBJECT	ADVISOR
PHYSICS	ALOK
COMP SC	RAJAN
CHEMISTRY	MANJU
MATHS	SMITA
HISTORY	KISHORE

1. TO DISPLAY THE NAME OF STUDENT , SUBJECT AND ADVISOR NAME
2. TO DISPLAY THE STUDENT NAME AND ADVISOR ALL THE STUDENTS WHO ARE OFFERING EITHER PHYSICS OR CHEMISTRY

| 52 | **DIFFERENCE BETWEEN** |

1. HAVING AND WHERE
2. % AND _
3. CHAR AND VARCHAR

| 53 | **OUTPUT** – |

a. Select Substring("mysql application" ,3,3)

b. Select instr("mysql application" ," p");
c. Select round(7756.452,1);
d. Select round(59999.99,-2);
e. Select round(59999.99,-2);
f. Select right("mysql application" ,3);

Self-awareness worksheet

What are three of your greatest strengths?

1. _____
2. _____
3. _____

What two things seem harder for you than for other kids your age?

1. _____
2. _____

What are two of your favorite things to do?

1. _____
2. _____

What are two of your least favorite things to do?

1. _____
2. _____

List three of your recent successes (big or small):

1. _____
2. _____
3. _____

Why was I successful?

What could I have done differently?

List two things you did recently that you could have done better:

1. _____
2. _____

Who do you turn to for help with things that are hard for you?

_____

How do learning and thinking differences make me stronger?

Do you think struggling with things makes you a stronger person? (Yes / No)

How can I describe my unique way of learning to friends and teachers? Are there any adults who can help me think this through?

Are you open to talking with friends about what you're strong at and what you struggle with? (Yes / No)

Are you open to asking teachers for help with things that are hard for you? (Yes / No)

Understood