PM SHRI KENDRIYA VIDYALAYA KARGIL
HOLIDAYS HOMEWORK
Class-XII

PHYSICS

Solve these important previous year CBSE questions in your class notebook and ask for doubts in online classes during vacations.
Prepare a notebook and write this homework in that notebook
BY KARAN KINDRA

ELECTROSTATICS

1. Derive an expression for the electric field at a point on the axial position of an electric dipole.
2. Derive an expression for the electric field at a point on the equatorial position of an electric dipole.
3. Explain the principle of a capacitor and derive an expression for the capacitance of a parallel plate capacitor.
4. State Gauss theorem and apply it to find the electric field at a point due to (a) a line of charge (b) A plane sheet of charge (c) A Charged spherical conducting shell
5. Derive an expression for the capacitance of a parallel plate capacitor with (a) a dielectric slab (b) a metallic plate in between the plates of the capacitor.

CURRENT ELECTRICITY
Define drift velocity and derive an expression for it.
Derive the expression I=nAevd
Deduce Ohm's law from elementary ideas and hence write an expression for resistance and resistivity.
Derive an expression for conductivity in terms of mobility
Explain the color coding of carbon resistors.
Derive an expression for the current in a circuit with external resistance R when
(a) 'n' identical cells of emf E and internal resistance r are connected in series
(b) 'm' identical cells are connected in parallel
 State and explain Kirchhoff's laws.
 State and explain the principle of Wheat Stone's principle. Deduce it using Kirchhoff's laws.

MAGNETIC EFFECT OF CURRENT
State Biot- Savart law and apply it to find the magnetic field due to a circular loop carrying current at a point (a) at its Centre (b) on the axis

State Ampere's circuital law and apply it to find the magnetic field (a) inside a current carrying solenoid (b) inside a current carrying toroid

Apply Ampere's circuital law to determine the magnetic field at a point due to a long straight current carrying conductor.

Derive an expression for the force on a current carrying conductor in a uniform magnetic field
Derive an expression for the force between long straight conductors carrying current and hence define 1 ampere.
Derive an expression for the torque on a current carrying loop in a uniform magnetic field.
Describe the principle construction and working of a Moving coil galvanometer.
Describe the conversion of a moving coil galvanometer into (a) Ammeter (b) Voltmeter

What is a radial magnetic field? What is its importance in a moving coil galvanometer?How is a radial magnetic field realized in moving coil galvanometers?

Describe the motion of a charged particle in a magnetic field when it enters the field (a)to the field lines (b) obliquely making and angle Θ with the field lines.

ELECTROMAGNETIC INDUCTION

State and Explain Faraday's laws of electromagnetic induction.

State Lenz' Law and show that it is in accordance with the law of conservation of energy.

Use Lenz' law to find the direction of induced emf in a coil when

      (a) a north pole is brought towards the coil (b) north pole taken away from the coil

      (c) A south pole is brought towards the coil and (d) a south pole is taken away from the coil,

      Draw illustrations in each case.

Define self-induction and self-inductance. What is its unit? Write its dimensions.

Derive an expression for the self-inductance of a long solenoid.

Explain the phenomenon of mutual induction and define mutual inductance. Write the unit and dimensions of mutual inductance.

Describe the various methods of producing induced emf. Derive an expression for the instantaneous emf induced in a coil rotated in a magnetic field.

ALTERNATING CURRENT

Describe the principle construction and working of an AC generator. Draw neat labeled diagram

Draw the phasor diagram showing voltage and current in LCR series circuit and derive an expression for the impedance.

What do you mean by resonance in Series LCR circuit? Derive an expression for the frequency of resonance in LCR circuit.

Distinguish between resistance, reactance and impedance.

Define the Quality factor (Q factor) of resonance and derive an expression for it.

Derive an expression for the average power in an ac circuit.

Define power factor. Deduce expression for it and explain wattles current?

Describe the principle construction theory and working of a transformer.

Describe the various losses in a transformer and explain how the losses can be minimized.

ELECTROMAGNETIC WAVES

What is displacement current? Explain its need.

Explain the inadequacy of Ampere's circuital law

Describe Hertz experiment to demonstrate the production of electromagnetic waves

Write the properties of electromagnetic waves.

Give two uses each of all e-m waves.

RAY-OPTICS

Define Total internal reflection and write the conditions for TIR. Derive a relation between critical angle and the refractive index of the medium. Also explain the working of isosceles prism and optical fiber.

Derive the following relation for a real image formed by a convex refracting surface when the object is placed in a rarer medium. Also write the assumptions and sign convention used.

Derive the lens maker's formula. Also write the assumptions and sign convention used.

Derive the relation between refractive index, angle of prism and incident angle for the totally reflecting prism.

Draw a ray diagram to show the image formation in refracting type

Astronomical telescope in the near point adjustment (when image is formed at LDDV i.eD=25cm). Derive an expression for its magnifying power. Why the diameter of objective of telescope should be large.

10. Draw a ray diagram to show the image formation in refracting type astronomical telescope in the normal adjustment (when image is formed at infinity). Derive an expression for its magnifying power. How does the magnifying power get affected on increasing the aperture of the objective lens and why?

11. Draw a ray diagram to show the image formation a compound microscope. Explain briefly the working. Derive an expression for its magnifying power. Why the diameter of objective of microscope should be small.

12. Draw a labeled diagram of a reflecting type telescope. State two advantages of this telescope over refracting type telescope.

WAVE OPTICS

1. Define wave front. State Huygens principle and verify Snell's law.
2. State Huygens principle and prove the laws of reflection on the basis of wave theory.
3. What do you mean by interference of light? Explain in brief the Young's double slit experiment.
4. What are the coherent sources? Write the conditions for the sustained interference pattern. Also draw the intensity v/s path difference curve.
5. Find the conditions for constructive and destructive interference. How does the intensity depend on the width of slit?
6. Write the expression for the fringe width. What is the effect on the fringe width if the whole apparatus (YDSE) is completely immersed in a liquid of refractive index µ?
7. What do you mean by diffraction of light and state the condition for the diffraction? Obtain the conditions for secondary maxima and minima. Also draw the intensity distribution curve.
8. Prove that the width of the central maxima is twice the width of the secondary maxima.How does the width of central maxima depend on the width of the slit?

DUAL NATURE OF RADIATION AND MATTER

1. Describe the experiment to study photoelectric effect and explain the laws of photoelectric effect and the significance of each.
2. Draw all the graphs related to photoelectric effect.
3. Explain Einstein's photoelectric equation and explain the laws of photoelectric effect using it.
4. State and explain de Broglie relation for matter waves.
5. Describe Davisson- Germer experiment which provides experimental evidence for wave nature of matter.
6. Write the characteristics of Photon.

ATOMS AND NUCLEI

Draw a plot showing the variation of binding energy per nucleon with mass number A. Write two important conclusions which you can draw from this plot. Explain with the help of this plot,the release in energy in the processes of nuclear fusion and fission.

Derive the expression for radius , velocity, kinetic energy, potential energy and total energy for hydrogen and hydrogen like atom.

Write the values for initial and final value of 'n' for Lyman ,Balmer, Paschen, Bracket and Pfund series.

Solve is the value for shortest and longest wavelength for Lyman ,Balmer, Paschen, Bracket and Pfund series.

SEMICOUNDUCTOR ELECTRONICS

1. Distinguish between conductors, insulators and semiconductors on the basis of energy bands.
2. What are extrinsic semiconductors? Mention its types and explain the mechanism of conduction in each.
3. Explain the conduction in N Type and P Type semiconductor on the basis of band theory.
4. Explain the formation of depletion layer and potential barrier in a PN junction diode.
5. Draw the circuit diagram used to determine the V-I characteristics of a diode and draw the forward and reverse bias characteristics of a diode. Explain the conclusions drawn from the graph.
6. With the help of a labeled circuit diagram explain the working of half wave rectifier and draw the input and output waveforms.
7. With the help of a labeled circuit diagram explain the working of full wave rectifier and draw the input and output waveforms.

Biology

1. Revise all Chapters for the CBSE Board Exams.

2. Weekly modules will be shared in class group for answer writing practice:

4th December 2023- 9th December 2023	1. Sexual Reproduction in Flowering Plants 2. Human Reproduction
10th December 2023- 16th December 2023	3. Reproductive Health 4. Principles of Inheritance and Variations
17th December 2023- 23rd December 2023	5. Molecular Basis of Inheritance
24th December 2023- 30th December 2023	6. Evolution 7. Human Health and Diseases
31st December 2023- 6th January 2024	8. Microbes in Human Welfare 9. Biotechnology: Principles and Processes
7th January 2024 – 13th January 2024	10. Biotechnology and Its Applications 11. Organisms and Population
14th January 2024- 20th January 2024	12. Ecosystem 13. Biodiversity and Conservation
21st January 2024- 27th January 2024	Ch 1-13 Diagram Practice
28th January 2024- 3rd February 2024	Sample Ques Paper 1 & 2
4th February 2024- 10th February 2024	Sample Ques Paper 3 & 4

Note: Weekly modules will be shared in Google Classroom as per schedule for revision.

CHEMISTRY

(SOLUTION)

Q1 Derive the relationship between relative lowering of vapour pressure and mole fraction of the volatic liquid?

Q- 2. Calculate (a) molality (b) molarity and (c) mole fraction of KI if the density of 20% (mass/mass) aqueous KI is 1.202 g mL^{-1}.

Q3 Why does a solution containing a non-volatile solute have higher boiling point than the pure solvent? Why is elevation of boiling point a colligative property?

Q 4. Based on solute-solvent interactions, arrange the following in order of increasing solubility in n-octane and explain.

Cyclohexane, KCI, CH_3OH, CH_3CN

Q5. Amongst the following compounds, identify which are insoluble, partially soluble and highly soluble in water

(i) phenol,   (ii) toluene,   (iii) formic acid,

(iv) ethylene glycol,   (v) chloroform,   (vi) pentanol.

Q6 . If the density of some lake water is 1.25 g mL^{-1} and contains 92 g of Na$^+$ ions per kg of water, calculate the molality of Na$^+$ ions in the lake.

Q7. If the solubility product of CuS is 6×10^{-16}, calculate the maximum molarity of CuS in aqueous solution.

Q8. Calculate the mass percentage of aspirin ($C_9H_8O_4$) in acetonitrile (CH_3CN) when 6.5 g of $C_9H_8O_4$ is dissolved in 450 g of CH_3CN.

Q9. Calculate the amount of benzoic acid (C_6H_5COOH) required for preparing 250mL of 0.15 M solution in methanol.

Q10. Calculate the amount of benzoic acid (C_6H_5COOH) required for preparing 250mL of 0.15 M solution in methanol.

Chemical Kinetics

1. What is the effect of adding a catalyst on
(i) Activation energy (Ea), and
(ii) Gibbs energy (ΔG) of a reaction?

2. For the reaction $2N_2O_5$ (g) $4NO_2$ (g) + O_2 (g) the rate of formation of NO_2(g) is 2.8×10^{-3} Ms^{-1}. Calculate the rate of disappearance of N_2O_5(g).
Ans-2. 1.4×10^{-3} Ms^{-1}

3. What do you understand by the rate law and rate constant of a reaction? Identify the order of a reaction if the units of its rate constant are:
(i) L^{-1} mol s^{-1} (ii) L mol^{-1} s^{-1}.

4. The rate constant for a reaction of zero order in A is 0.0030 mol L^{-1} s^{-1}. How long will it take for the initial concentration of A to fall from 0.10 M to 0.075 M?
Answer- t = 8.33 seconds

5. Define the following terms:
(i) Pseudo first order reaction
(ii) Half life period of reaction ($t_{1/2}$)

6. For a reaction: A + H_2O B, Rate $\propto$ [A].
What is its (i) molecularity (ii) order of reaction?

7. 87.5% of the substance disintegrated in 45 minutes (first order reaction). What is its half-life?
Ans- 15 minutes

8. After 24 hrs, only 0.125 gm out of the initial quantity of 1 gm of a radioactive isotope remains behind. What is its half life period?
Answer-8h

9. Rate constant k for first order reaction has been found to be 2.54×10^{-3} s^{-1}. Calculate its three-fourth life.
Answer-5.46×10^2 s

10. (i) Explain why H_2 and O_2 do not react at room temperature.
(ii) Write the rate equation for the reaction $A_2 + 3B_2 \to C_2$ if the overall order of the reaction is zero.

d & f Block Elements

Q1. Why higher oxidation states are more common in oxides rather than fluorides of transition metals.

Q2. Write oxoanions of first series transition metals in which group number and O.N. of transition metal are same

Q3. Give reason
   i)   For copper E^0 Cu^{2+}/Cu is +ve .
   j)   Hg (I)   exist as Hg_2^{2+} while Cu(I) as Cu^{+1}.

Q4. Give reason-
    i) For Mn , E^0 Mn^{3+}/Mn^{2+} is +ve.
    ii) For Cr , E^0 Cr^{3+}/Cr^{2+} is –ve.

Q5. For M^{2+}/M and M^{3+}/M^{2+} systems, E^o values for some metals are as follows:
Cr^{2+}/Cr = – 0.9 V Cr^{3+}/Cr^{2+} = – 0.4 V
Mn^{2+}/Mn = – 1.2 V Mn^{3+}/Mn^{2+} = +1.5 V
Fe^{2+}/Fe = – 0.4 V Fe^{3+}/Fe^{2+} = +0.8 V
Use this data to comment upon
(i) stability of Fe^{3+} in acid solution as compared to that of Cr^{3+} and Mn^{3+}
(ii) ease with which iron can be oxidised as compared to the similar process for either Cr or Mn metals.

Q6. Why most of the compounds of transition metal are coloured in solid state as well as in their solution form.

Q7. Calculate the spin only magnetic moment of iron present in the compound $[Fe(H_2O)_5NO]_{2+}$

Q8. Why (Zn^{2+}, Cu^+) does not exhibit any colour ?

Q9. Though both Cr^{2+} and Mn^{3+} have d^4 configuration, yet Cr^{2+} is reducing and Mn^{3+} is oxidising. Explain why?

Q10. Why is HCl not used to acidify a permanganate solution in volumetric analysis estimation of Fe^{2+} and oxalate ion?
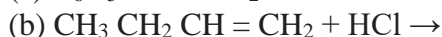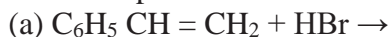
Coordination Compounds

Q. 1. Out of $[CoF_6]^{3-}$ And $[Co(en)_3]^{3+}$ which one complex is,
(i) Paramagnetic,
(ii) More stable,
(iii) Inner orbital complex and
(iv) High spin complex
(Atomic number of Co = 27)

Q. 2. Out of $[CoF_6]^{3-}$ And $[Co(ox)_3]^{3+}$ which one complex is (i) diamagnetic,
(ii) more stable,
(iii) outer orbital complex and
(iv) low spin complex.
(Atomic number of Co = 27)

Q. 3. Write the hybridization and magnetic character of the following complexes:
(i) $[Fe(H_2O)_6]^{2+}$
(ii) $[Fe(CO)_5]$

Q. 4. Define the following terms with a suitable example of each :
(a) Chelate complex
(b) Ambidentate ligand

Q. 5. Using IUPAC norms, write the formula for the following complexes :
(a) Tetraamminediaquacobalt(III) chloride
(b) Dibromidobis(ethane-1,2-diamine)platinum(IV) nitrate

Q. 6. (a) Using valence bond theory, write the hybridization and magnetic character of the complex $[Fe(CN)_6]^{4-}$. (Atomic no. of Fe=26)
(b) Write the electronic configuration of d^6 on the basis of crystal field theory when :
(i) $\triangle o < P$ and
(ii) $\triangle o > P$

Q. 7. (a) Although both $[NiCl_4]^{2-}$ and $[Ni(CO)_4]$ have sp3 hybridisation yet $[NiCl_4]^{2-}$ is paramagnetic and $[Ni(CO)_4]$ is diamagnetic. Give reason. (Atomic no. of Ni = 28)
(b) Write the electronic configuration of d^5 on the basis of crystal field theory when. (i) $\triangle o < P$ and (ii) $\triangle o > P$

Q. 8. (i) Using crystal field theory, write the electronic configuration of iron ion in the following complex ion. Also predict its magnetic behaviour: $[Fe(H_2O)_6]2+$
(ii) Write the IUPAC name of the coordination complex: $[CoCl_2(en)_2]NO_3$

Q. 9. (i) Predict the geometry of $[Ni(CN)_4]^{2-}$
(ii) Calculate the spin only magnetic moment of $[Cu(NH_3)_4]^{2+}$ ion.

Q. 10. Write the IUPAC name and hybridization of the following complexes :
(i) $[Ni(CN)4]2-$.
(ii) $[Fe(H2O)6]2+$. (Given : Atomic number of Ni = 28, Fe = 26)

Haloalkanes and haloarenes

1. A hydrocarbon C_5H_{10} does not react with chlorine in dark but gives a single monochloro compound C_5H_9Cl in bright sunlight. Identify the hydrocarbon.

2. $C_6H_5CH_2CH(Cl)C_6H_5+KOH(alc.)\xrightarrow{Heat}$ [A]

3. Why do alkenes prefer to undergo electrophilic addition reaction while arenes prefer electrophilic substitution reactions ? Explain.

4. Identify all the monochloro structural isomers formed on free radical monochlorination

of $(CH_3)_2CHCH_2CH_3$.
5. Write the products of the following reactions:
    (a) $C_6H_5 CH = CH_2 + HBr \rightarrow$
    (b) $CH_3 CH_2 CH = CH_2 + HCl \rightarrow$
    (c) $C_6H_5 CH_2 CH = CH_2 + HBr$ *Peroxide* $\rightarrow$
6. Haloalkanes react with KCN to form alkyl cyanides as main product while AgCN forms isocyanides as the main product. Explain.
7. Predict the order of reactivity of the following compounds in SN1 and SN2 reactions:
    (a) The four isomeric bromobutanes
    (b) $C_6H_5CH_2Br$, $C_6H_5CH(Br)C_6H_5$, $C_6H_5CH(Br)CH_3$, $C_6H_5C(Br)(CH_3)C_6H_5$.
8. Identify chiral and achiral molecules in each of the following pair of compounds:
    (a) $CH_3CH(Br)(OH)$ and CH_3CHBr_2
    (b) $CH_3CH(OH)CH_2CH_2CH_3$ and $CH_3CH_2CH(OH)CH_2CH_3$
    (c) $CH_3CH(Br)CH_2CH_3$ and $CH_3CH_2CH_2CH_2Br$
9. Although chlorine is an electron withdrawing group, yet it is *ortho-*, *para* - directing in electrophilic aromatic substitution reactions. Why?
10. (a) The dipole moment of chlorobenzene is lower than that of cyclohexyl chloride
    (b) Give chemical tests to distinguish between the following pairs of compound: Benzyl chloride and Chlorobenzene .

Alcohols, Phenols and Ethers

1. Give a chemical test to distinguish between the following pairs of compounds:
 2. Why p-Nitro phenol is more acidic than Cresols?
3.Ortho nitrophenol has lower boiling point than p-nitrophenol. Why?
4. In the two hydroxy organic compounds ROH and R'OH, the first one is basic and other is acidic in behaviour. How is R different from R'?
5. Give a chemical test to distinguish between 2-Pentanol and 3-Pentanol.
6. Explain the following
(a) Cyclohexanol is more soluble in water than 1-Hexanol..
(b) Propane 1,3-diol is more soluble in the water than propan-1-ol.
7. Arrange the following in order of increasing boiling points. State reason.

$CH_3CH_2CH_2CH_2OH$, $CH_3CH_2CH_2CH_3$, $CH_3CH_2OCH_2CH_3$, $CH_3CH_2CH_2CHO_2$
8. How will you prepare:
        (a)1-bromobutane
        (b) Phenol
9. Give chemical test to distinguish b/w ?
        (a)Phenol and benzyl alcohol
        (b)Butan-2-ol and 2-methylpropan-2-ol

10. Give IUPAC names of product formed in the following reactions:
        (a) catalytic reduction of butanal
        (b) Hydration of propene in the presence of dil. Sulphuric acid

Aldehydes, Ketones and carboxylic acids -8

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

a) Propanal and propanone   b)Benzaldehyde and benzoic acid.

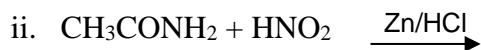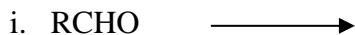c)Phenol and Benzoic acid   d) Benzaldehyde and Acetophenone

2.Account for the following :

(i) Most aromatic acids are solids while acetic acid and others of this series are liquids.

(ii) Explain why ketones are less reactive towards nucleophilic addtion rxns than aldehydes.

3.Complete the following reaction equations:
            Zn/HCl

i. RCHO $\xrightarrow{\hspace{2cm}}$

ii. $CH_3CONH_2 + HNO_2$ $\xrightarrow{Zn/HCl}$

4.Account for the following :

(i) CH_3CHO is more reactive than CH_3COCH_3 towards reaction with HCN.

(ii) There are two $-NH_2$ groups in semicarbazide ($H_2NNHCONH_2$). However, only one is involved in the formation of semicarbazone.

5.There are two-NH_2 groups in semicarbazide. However only one is involved in formation of semicarbazones.

Explain

6.Write the equations involved in the following reactions :

(i) Stephen reaction (ii) Etard reaction

7.CH_3CHO is more reactive than CH_3COCH_3 towards reaction with HCN. Explain by an example

8.Write structural formula and names of four possible aldol condensation products from propanal and butanal.

In each case indicate which aldehyde acts as nucleophile and which as electrophile.

9.An organic compound with molecular formula C9H10O forms 2,4-DNP derivative, reduces Tollen's reagent and undergoes Cannizzaro's reaction. On vigorous oxidation it gives 1,2-benzenedicarboxylic acid. Identify the compound.

10. Treatment of Benzaldehyde with HCN gives a mixture of two isomers which cannot be separated even by careful fractional distillation. Explain why?

Amines -9

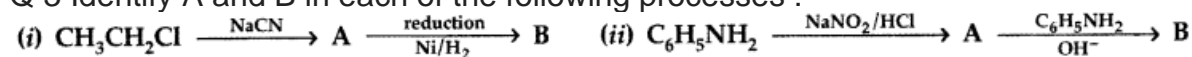**Q 1 (i)**What is the product when $C_6H_5CH_2NH_2$ reacts with HNO_2?

(ii) What is the best reagent to convert nitrile to primary amine?

Q2 Give the chemical tests to distinguish between the following pairs of compounds :
(i) Ethyl amine and Aniline
(ii) Aniline and Benzylamine

Q 3 Identify A and B in each of the following processes :

(i) $CH_3CH_2Cl \xrightarrow{NaCN} A \xrightarrow[Ni/H_2]{reduction} B$ (ii) $C_6H_5NH_2 \xrightarrow{NaNO_2/HCl} A \xrightarrow[OH^-]{C_6H_5NH_2} B$
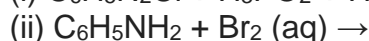
Q4 Give the chemical tests to distinguish between the following pairs of compounds:
(i) Methylamine and Dimethylamine
(ii) Aniline and N-methylaniline
Q5 Describe the following giving the relevant chemical equation in each case :

Q6 Complete the following reaction equations :
(i) $C_6H_5N_2Cl + H_3PO_2 + H_2O \rightarrow$
(ii) $C_6H_5NH_2 + Br_2 (aq) \rightarrow$
Q7 Give IUPAC names of the following compounds
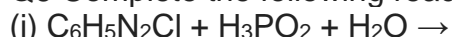
(a) $CH_2=CH-\underset{\underset{CH_3}{|}}{CH}-NH_2$

(b) $NH-\overset{\overset{O}{||}}{C}-CH_3$ (attached to benzene ring)
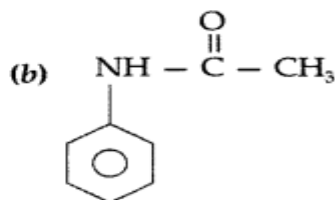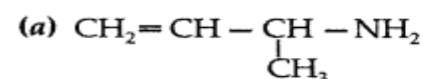
Q8 How are the following conversions carried out :
(a) Aniline to p-hydroxyazobenzene
(b) Ethanoyl chloride to Ethanenitrile.

Q9 How are the following conversions carried out?
(i) CH_3CH_2Cl to $CH_3CH_2CH_2NH_2$
(ii) Benzene to aniline (Comptt. Delhi 2012)

Q 10 How would you account for the following :
(a) Aniline is a weaker base than cyclohexyl amine.
(b) Methylamine in aqueous

d & f Block elements

Q1 (i) Name a member of the lanthanoids series which is well known to exhibit +4
oxidation state.
(ii)Actinoids contraction is greater from element to element than lanthanoids
contraction.
(iii) Which out of Lu $(OH)_3$ and La$(OH)_3$ is more basic and why?
(ii) This is because of poor shielding by 5f electrons in actinoids in comparison
with shielding of 4f electrons in lanthanoids.
(iii) La $(OH)_3$ is more basic than Lu $(OH)_3$ due to lanthanoids contraction.
Q2. Describe the oxidizing action of potassium dichromate and write the ionic
equations for its reaction with:
(i) Iodide (ii) iron (II) solution (iii) H2S
Q3. How would you account for the following:
(i) $HgCl_2$, $SnCl_2$ cannot exist together in an aqueous solution. Why?
(ii) In a transition series of metals, the metal which exhibits the greatest number of oxidation states occurs in
the middle of the series.
Q 4 (a) Which metal in the first transition series (3d series) exhibits +1 oxidation state with most frequency
and why?
(b) Which of the following cations are coloured in aqueous solutions and why?
SC^{3+}, V^{3+}, Ti^{4+}, Mn^{2+}
(At. No. Sc = 21, V = 23, Ti = 22, Mn = 25)
Q5. **a)** When Cu^{2+} ion is treated with KI, a white precipitate is formed. Explain the reaction with the help of a
chemical equation.

b) Out of Cu_2Cl_2 and $CuCl_2$, which is more stable and why?

Q6. When a brown compound of manganese (A) is treated with HCl it gives a gas (B). The gas taken in
excess, reacts with NH_3 to give an explosive compound (C). Identify compounds A, B and C.

Q7. a) Although fluorine is more electronegative than oxygen, but the ability of oxygen to stabilise higher
oxidation states exceeds that of fluorine. Why?

b) The second and third rows of transition elements resemble each other much more than they resemble the
first row. Explain why?

Q8.a) Ionisation enthalpies of Ce, Pr and Nd are higher than Th, Pa and U. Why?

b). Although Zr belongs to 4d and Hf belongs to 5d transition series but it is quite difficult to separate them.
Why?

Q9. a) Although +3 oxidation states is the characteristic oxidation state of lanthanides but cerium shows +4
oxidation state also. Why?

b). Explain why does colour of $KMnO_4$, disappear when oxalic acid is added to its solution in acidic medium.

Q 10. A solution of $KMnO_4$ on reduction yields either a colourless solution or a brown precipitate or a green
solution depending on pH of the solution. What different stages of the reduction do these represent and how
are they carried out?

Haloalkanes and Haloarenes

1. How are the following conversions carried out?
   (i) Benzyl chloride to benzyl alcohol,
   (ii) Methyl magnesium bromide to 2-methyl- propan-2-ol.
   (iii) Chlorobenzene to Toluene
2. Write the major product(s) in the following:
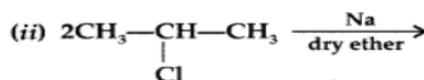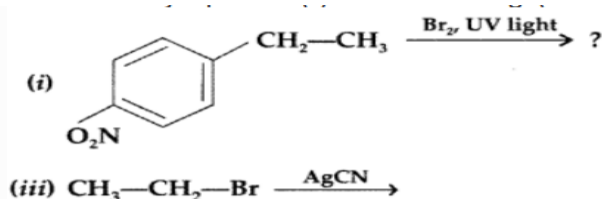
3. What happens when
   (i) Chlorobenzene is treated with $Cl_2/FeCl_3$,
   (ii) Ethyl chloride is treated with $AgNO_2$,
   (iii) 2-bromopentane is treated with alcoholic KOH?
   Write the chemical equations in support of your answer.
4. Give reasons :
   (a) n-Butyl bromide has higher boiling point than t-butyl bromide.
   (b) Racemic mixture is optically inactive.
   (c) The presence of nitro group ($-NO_2$) at o/p positions increases the reactivity of haloarenes towards nucleophilic substitution reactions.
5. (a)Vinyl chloride is less reactive than allyl chloride. Why?
   (b) The product formed during SN1reaction is a racemic mixture.
   (c) Racemic mixture is optically inactive.
6. Compound 'A' with molecular formula C_4H_9Br is treated with aq. KOH solution. The rate of this reaction depends upon the concentration of the compound 'A' only. When another isomer 'B' of this compound was treated with aq. KOH solution, the rate of reaction was found to be dependent on concentration of compound and KOH both.
   (i) Write down the structural formula of both compounds 'A' and 'B'.
   (ii) Out of these two compounds, which one will be optically active?
7. Write structures of compounds A, B and C in each of the following reactions:
   $$C_2H_5Br \ Mg, \ dry \ ether \rightarrow \quad A \quad (a) \ CO_2 \ (b)H_3O^+ \rightarrow \quad B \quad PCl_5 \rightarrow C$$
8. (a) Explain the role of Lewis acids in the preparation of aryl bromides and aryl chlorides.
   (b) Which of the following compounds out of (A) and (B) will not react with a mixture of NaBr and H_2SO_4. Explain why? (A) $CH_3CH_2CH_2OH$ (B) C_6H_5OH
9. (a) Write the steps involved in the mechanism of the S_N1 reaction.
   (b) Predict the rate determining steps from the mechanism. Give reasons.
10. (a) Write the structure of major alkene formed by β-elimination of 2, 2, 3-trimethyl-3-bromopentane with sodium ethoxide in ethanol.
    (b) Identify the chiral molecule in the following pair:
        $CH_3CH_2CHBrCH_3$ & $CH_3CH_2CHBrCH_2CH_3$
    (c) Identify (A) and (B) in the following:
        $$A \ Na, dry \ ether \leftarrow \ C_6H_5Br \ \ Mg, dry \ ether \rightarrow B$$

Alcohol, Phenols and Ethers

Q1. Give structures of the products you would expect when each of the following alcohol reacts with
    (a) HCl –ZnCl$_2$
    (b) HBr

(c) SOCl₂.

Q2. Predict the major product of acid catalyzed dehydration of
   (a) 1-methylcyclohexanol
   (b)   1- methylpentan-2-ol
   (c) butan-1-ol

Q3. Ortho and Para nitrophenols are more acidic than phenol. Draw the resonance structures of the corresponding phenoxide ions.

Q4.   (a) How can we produce nitro benzene from phenol ?
   (b)Why are reactions of alcohol/phenol and with acid chloride in the presence of pyridine?
   (c) How is tert-butyl alcohol obtained from acetone?

Q5.   Predict the products of the following reactions
   (a) Tetrahydrofurane + HI (2 mol) →
   (b) Tertiary butylbromide + KOH(alc)→
   (c) $C_6H_5OCH_3$ + CH_3Cl →

Q6.   (a) Why is preparation of ethers by acid catalyzed dehydration of 2° and 3° Alcohols not a suitable method?
   (b) Phenol has much less pka than alcohol, explain.
   (c) Ethers possess a net dipole moment even if they are symmetrical in structure .explain

Q7. Account for the following:
   (a)   O-nitrophenol is more acidic than o- methoxyphenol
   (b)   Phenol does not give protonation reaction readily
   (c)   Propanol has higher boiling point than butane

Q8. Give the structures and IUPAC names of the products expected from the following reactions:
   (a) Catalytic reduction of butanal.
   (b) Hydration of propene in the presence of dilute Sulphuric acid.
   (c) Reaction of Propanone with methyl magnesium bromide followed by hydrolysis.

Q9 Give names of the reagents to bring about the following transformations:
   (a) Ethanoic acid to ethanol
   (b) Propane-1-ol to propanal
   (c)Pent-3-en-2-ol to pent-3-en-2-one

Q10   Explain   the   mechanism   of   the   following   reactions   :
   (a) Addition of Grignard's reagent to the carbonyl group of a compound forming an adduct followed by hydrolysis.
   (b)   Acid   catalysed   dehydration   of   an   alcohol   forming   an   alkene.
   (c) Acid catalysed hydration of an alkene forming an alcohol.

Aldehydes, Ketones and Carboxylic acids

1.An organic compound (*A*) on treatment with ethyl alcohol gives a carboxylic acid (*B*) and compound (*C*).

Hydrolysis of (*C*) under acidified conditions gives (*B*) and (*D*). Oxidation of (*D*) with KMnO₄ also gives (*B*).

(*B*) on heating with Ca(OH)₂ gives (*E*) having molecular formula C_3H_6O. (E) does not give Tollen's test and

does not reduce Fehling's solution but forms a 2, 4-dinitrophenylhydrazone. Identify (*A*), (*B*), (*C*), (*D*) and (*E*)

2.Account for the Following:

 (i)Higher carboxylic acid are insoluble in water. Why?
 (ii)Why p-nitro benzoic acid has higher Ka value than benzoic acid?
 (iii) The boiling points of aldehydes and ketones are lower than that of the corresponding acids.

3. Write the chemical tests to distinguish between:

          (i)   Acetaldehyde and Benzaldehyde

          (ii)   Phenol and Acetic acid

          (iii)   Butanal and Butanone

4.Account for the following:

(i) Oxidation of toluene to C_6H_5CHO with CrO_3 is carried out in presence of acetic anhydride.
(ii)Melting point of an acid with even number is higher than those of its neighbours with odd number of carbon atoms.
(iii)Explain why o-hydroxy benzaldehyde is a liquid at room temperature while p-hydroxy benzaldehyde is a high melting solid.

5.Two moles of organic compound A on treatment with a strong base gives two compounds B and C.

Compound B on dehydration with Cu gives A while acidification of C yields carboxylic acid D having

molecular formula of CH_2O_2. Identify the compounds A, B, C, D

6.An organic compound 'A' is resistant to oxidation forms on oxidation a compound 'B(C_3H_8O) on reduction.

'B' reacts with HBr to form a bromide C'which on treatment with alcoholic KOH forms an alkene 'D' (C_3H_6).

Deduce A, B, C, D.

7.Although phenoxide ion has more number of resonating structures than carboxylate ion,
carboxylic acid is a stronger acid than phenol. Give two reasons.
8.Arrange the following compounds according to the property indicated .
  (i) Acetaldehyde, Acetone, Di-tert-butyl ketone, Methyl tert-butyl ketone
(in increasing order of their reactivity towards HCN)
  (ii) CH_3CHO, CH_3CH_2OH, CH_3OCH_3, $CH_3CH_2CH_3$.(increasing order of their boiling points.)

  (iii)$C_6H_5COCH_3$, CH_3 CHO, CH_3COCH
(increasing order of their reactivity towards nucleophilic addition reaction.)
9.Complete the following equations :

(i)

COOH

$\xrightarrow{SO_3/H_2SO_4}$

(ii)$CH_3CONH_2 + HNO_2$ $\longrightarrow$

(iii) $CH_3CHO + C_6H_5NHNH_2$ $\longrightarrow$
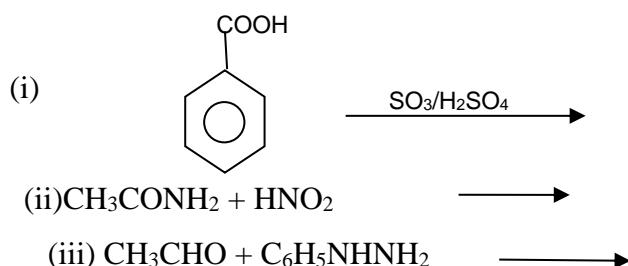
10.How will you bring about the following conversions?
(i) Propanone to propane
(ii) Benzoyl chloride to benzaldehyde
(iii) Ethanal to but-2-enal

Amines

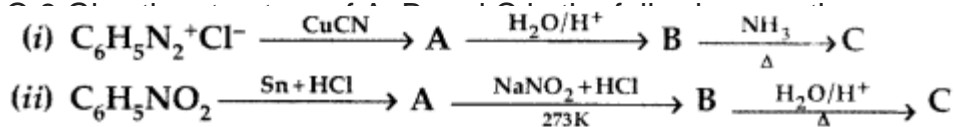**Q1** Giving an example for each describe the following reactions :
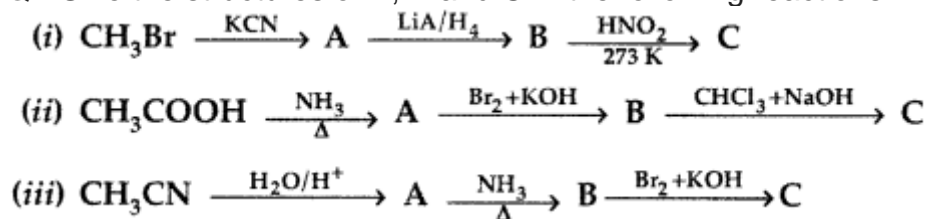(i) Hofmann's bromamide reaction
(ii) Gatterman reaction
(iii) A coupling reaction

Q 2 State reasons for the following :
(i) pK_b value for aniline is more than that for methylamine.
(ii) Ethylamine is soluble in water whereas aniline is not soluble in water.
(iii) Primary amines have higher boiling points than tertiary amines.

(i) $C_6H_5N_2^+Cl^- \xrightarrow{CuCN} A \xrightarrow{H_2O/H^+} B \xrightarrow[\Delta]{NH_3} C$

(ii) $C_6H_5NO_2 \xrightarrow{Sn+HCl} A \xrightarrow[273K]{NaNO_2+HCl} B \xrightarrow[\Delta]{H_2O/H^+} C$

Q4 Give the structures of A, B and C in the following reactions :

(i) $CH_3Br \xrightarrow{KCN} A \xrightarrow{LiA/H_4} B \xrightarrow[273\ K]{HNO_2} C$

(ii) $CH_3COOH \xrightarrow[\Delta]{NH_3} A \xrightarrow{Br_2+KOH} B \xrightarrow{CHCl_3+NaOH} C$

(iii) $CH_3CN \xrightarrow{H_2O/H^+} A \xrightarrow[\Delta]{NH_3} B \xrightarrow{Br_2+KOH} C$

Q5 How will you convert the following :
(i) Nitrobenzene into aniline
(ii) Ethanoic acid into methanamine
(iii) Aniline into N-phenylethanamide
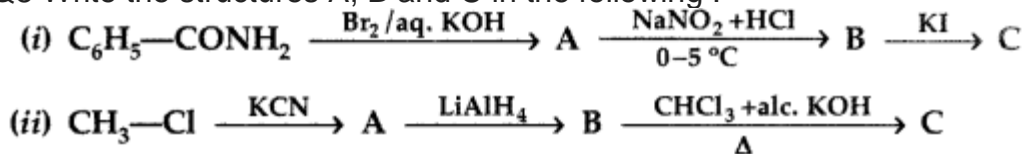(Write the chemical equations involved)

Q6 Account for the following :
(i) Primary amines ($R-NH_2$) have higher boiling point than tertiary amines (R_3N).
(ii) Aniline does not undergo Friedel – Crafts reaction.
(iii) $(CH_3)_2NH$ is more basic than $(CH_3)_3N$ in an aqueous solution.
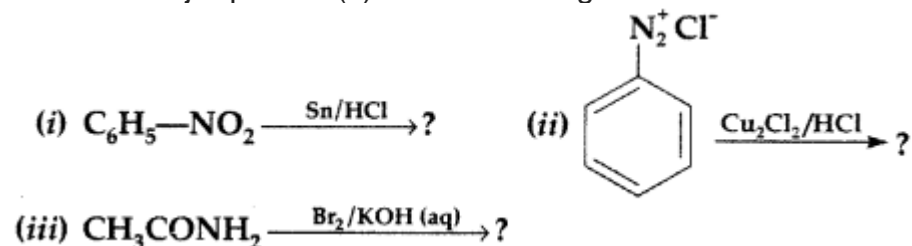
Q6 Account for the following:
(i) Aniline does not give Friedel-Crafts reaction.
(ii) Ethylamine is soluble in water whereas aniline is not.
(iii) pK_b of methylamine is less than that of aniline.

Q7 An aromatic compound 'A' on treatment with aqueous ammonia and heating forms compound 'B' which on heating with Br_2 and KOH forms a compound 'C' of molecular formula C_6H_7N. Write the structures and IUPAC names of compounds A, B and C.

Q8 Write the structures A, B and C in the following :

(i) $C_6H_5-CONH_2 \xrightarrow{Br_2/aq.\ KOH} A \xrightarrow[0-5\ °C]{NaNO_2+HCl} B \xrightarrow{KI} C$

(ii) $CH_3-Cl \xrightarrow{KCN} A \xrightarrow{LiAlH_4} B \xrightarrow[\Delta]{CHCl_3+alc.\ KOH} C$

Q9 Write major product(s) in the following reactions :

(i) $C_6H_5-NO_2 \xrightarrow{Sn/HCl} ?$ (ii) $N_2^+Cl^-$ on benzene ring $\xrightarrow{Cu_2Cl_2/HCl} ?$

(iii) $CH_3CONH_2 \xrightarrow{Br_2/KOH\ (aq)} ?$

Q10 Describe a method for the identification of primary, secondary and tertiary amines. Also write chemical equations of the reaction involved.

Biomolecules
Q. 31   (a) Why cannot vitamin C be stored in our body?
(b) When RNA is hydrolysed, there is no relationship among the quantities of different bases obtained. What does this fact suggest about the structure of RNA?

Q. 32 (a) What products would be formed when a nucleotide from DNA containing thymine is hydrolysed?
(b) What do you understand by the term glycosidic linkage?
Q. 33 Why are vitamin A and vitamin C essential to us? Give their important sources.
Q. 34 What are nucleic acids? Mention their two important functions.
Q. 35 (a) What are monosaccharides?
(b) What are reducing sugars?
Q. 36 What is glycogen? How is it different from starch?
Q. 37 What are the hydrolysis products of (a) sucrose and (b) lactose?
Q. 38 What happens when D-glucose is treated with the following reagents? (a) HI (b) Bromine water (c) HNO3
Q. 39 What are essential and non-essential amino acids? Give two examples of each type.
Q. 40 Define the following as related to proteins (a) Peptide linkage (b) Primary structure (c) Denaturation.

MATHEMATICS
1) PRACTICE ALL THE EXAMPLES AND EXERCISES OF EACH CHAPTERS.

2) Do maximum practice on miscellaneous examples and exercises of each chapter

3) Maximum practice is needed for calculus part as it contains maximum marks as compared to
   other chapters

4) Do revise all the chapter's examples and exercises thoroughly.

5) Do more questions on case study based from sample paper and previous year question papers

6) Try to solve maximum number of previous years papers and sample papers

SQ 1 to 20 carry 2 marks each

Q1 If a matrix has 8 elements, what are the possible orders it can have? What if it
    has 5 elements?

Q2   Construct a 4 × 3 matrix whose elements are i i

    (i) a_{ij} = 2i +_   (ii) a_{ij} = ___ ⁻ ʲ   (iii) a_{ij} = i j   i + j

Q3 · x − y   z· ·−1   4·

    If A =· .2x − y · · · · . = 05· .find x, y, z, ··

 Q4   Find a matrix X such that 2A + B + X = 0, where
A =−31 24, B = · 13 −52 · · ·   Q5 2
−1 · · 0   4· , find 3A2 − 2B + I

If A = · ·3   2 · · ,B = · · −1 7 · ·

   Q6   · · 0·   · 1   0· , find the values of ·
   for which A² = B.

       If A = · . 11· . and B = · . 5   1· .

   Q7   · 2 −1·   · 5 2·   · 2 5·

     Let A = · . 34 · . ,B = · .74· . ,C = · . 3 8· .

           Find a matrix D such that CD − AB = 0.

   Q8 52x ·

       If the matrix A = · y   z −3 · is a symmetric matrix,
   find x, y, z and t. ·   ·

                     · . 4t −7· ·

Q9 If $A = \begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}$ satisfies $A^4 = \lambda A$, then write the value of λ.

Q10 If $S = [S_{ij}]$ is a scalar matrix such that $s_{ij} = k$ and A is a square matrix of the same order, then $AS = SA$?

(a) A^k (b) $k + A$ (c) kA (d) kS

Q11 If A is a square matrix such that $A^2 = A$, then $(I + A)^3 - 7A$ is equal to

(a) A (b) $I - A$ (c) I (d) $3A$

Q12 If $\begin{bmatrix} 0 & 1 & -1 \end{bmatrix} \begin{bmatrix} 0 \\ 2 \\ 1 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix}$

$\begin{bmatrix} 1 & -1 & x \\ 2 & 1 & 3 \\ 1 & 1 & 1 \end{bmatrix}$ =0, find x.

Q13 If $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$ and $I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$, then find λ so that $A^2 = 5 A + \lambda I$.

Q14 If $A = \begin{bmatrix} 1 & 1 \\ 0 & 1 \end{bmatrix}$, prove that $A^n = \begin{bmatrix} 1 & n \\ 0 & 1 \end{bmatrix}$ for all positive integers n.

Q15 If $A = \begin{bmatrix} \cos\theta & i\sin\theta \\ i\sin\theta & \cos\theta \end{bmatrix}$, then prove by principle of mathematical induction that

$A^n = \begin{bmatrix} \cos n\theta & i\sin n\theta \\ i\sin n\theta & \cos n\theta \end{bmatrix}$ for all n $\in$ N.

Q16

If $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & -2 \\ a & 2 & b \end{bmatrix}$ is a matrix satisfying $AA^{T} = 9I_3$, then find the values of a and b.

Q17

If $A = \begin{bmatrix} \cos\alpha & \sin\alpha \\ -\sin\alpha & \cos\alpha \end{bmatrix}$, then find the values of α satisfying the equation $A^{T} + A = I_2$.

Q18

Find the values of x, y, z if the matrix $A = \begin{bmatrix} 0 & 2y & z \\ x & y & -z \\ x & -y & z \end{bmatrix}$ satisfy the equation $A^{T}A = I_3$.

Project -1

Make a project on Matrices and their applications (ex- coding and decoding, cryptography).

Project -2

Learn how to use Microsoft, Excel for addition, subtraction, and transpose of matrices. Make a soft copy of the same and paste screenshot of the output on the file along with project.

English
(Prose)
- The Last Lesson
- Lost Spring
- Deep Spring
- Deep Water
- The Rattrap
- Indigo
- Poets and Pancakes

- The interview
- Going Places

(Poetry)

My Mother at Sixty-Six

Keeping Quiet

A Thing of Beauty

A Roadside Stand

Aunt Jennifer's Tigers

2.Vistas:

- The Third Level
- The Tiger King
- Journey to the End of the Earth
- The Enemy
- On the Face of it
- Memories o Childhood
  o The Cutting of My Long Hair
  o We Too are Human Beings

Section B-18 Marks

Creative Writing Skills

3.Notice,up to 50 words. One out of the two given questions to be answered (4 marks Format :1/Content :2/Accuracy of Spelling and Grammar: 1).

4.Formal/informal invitation and Reply, up to 50 words. One out of the two given questions to be answered.(4marks: Format :**1**/Content :**2**/Accuracy of Spelling and Grammar: 1).

5.Letters based on verbal/visual input.to be answered in approximately 120-150 words. Letter types include application for a job with bio data or resume. Letters to the editor (giving suggestions or opinion on issues of public interest).One out of the two given questions to be answered.(5 marks: Format: 1/Organisation of ideas: 1/content : 2 / Accuracy of Spelling and Grammar :1)

6.Article/Report Writing, descriptive and analytical in nature based on verbal inputs to be answered in 120-150 words. One out of the two given questions to be answered .(05 Marks). Format: 1/Organisation of ideas : 1/Content : 2 Accuracy of Spelling and Grammar : 1).

हिन्दी

विषयाध्यापक :- डी आर ईणखिया Mr. D R INKHIYA

1.पढ़ाये गए सभी पाठों से प्रत्येक पाठ से 10 -10 बहुविकल्पीय व सारांश पढ़कर प्रश्नोत्तर तैयार करना।

2. दो पत्र लेखन (औपचारिक पत्र व अनौपचारिक पत्र)

3. आत्मपरिचय और दिन जल्दी जल्दी ढलता है के प्रश्नोत्तर लिखना।

4. अभिव्यक्ति और माध्यम पुस्तक से समस्या इकाईयों से पाँच - पाँच प्रश्न-उत्तर तैयार करना।

5. पठित और अपठित गद्यांश का अध्ययन करना और उसके प्रश्नोत्तर लिखना ।

6. अपठित काव्यांश को हल करना , जो प्रतिदर्श प्रश्नपत्र व अध्ययन सामग्री में दिए गए हैं।

7. विद्यालय की तरफ़ से दिए गए अध्ययन सामग्री में जो सारांश दिए गए है उसे पढ़ना और लिखना।

8. पाठ्यक्रम की कोई भी एक कविता याद करके तथा उसका वीडियो बनाकर मुझे व्यक्तिगत प्रेषित करें । (कविता डेढ़ मिनट से पाँच मिनट)

9. 'लोक संस्कृति दिवस' पर रिपोर्ट (प्रतिवेदन) लिखें ।

10. ज़िला कारगिल के दर्शनीय-स्थलों की जानकारी देते हुए दिल्ली में बसे अपने मित्र को पत्र लिखिए ।

11. अपने पाठ्यक्रम से जनसंचार के कोई पाँच प्रश्न

12. अभी तक जो भी पढ़ाया गया है, उसको कम-से कम पाँच बार दोहराएँ। आते ही उसी से प्रश्न पूछे जाएँगे।

Computer Science

1. You have to completely revise the study material book which you have received.
2. **Revise unit 1 and unit 3 properly.**
3. **Unit 1: Programming and Computational Thinking**
   Revision of the basics of Python • Functions: scope, parameter passing, mutable/immutable properties of data objects, pass arrays to functions, return values, functions using libraries: mathematical, and string functions. • File handling: open and close a file, read, write, and append to a file, standard input, output, and error streams, relative and absolute paths. • Using Python libraries: create and import Python libraries • Recursion: simple algorithms with recursion: factorial, Fibonacci numbers; recursion on arrays: binary search • Idea of efficiency: performance defined as inversely proportional to the wall clock time, count the number of operations a piece of code is performing, and measure the time taken by a program. Example: take two different programs for the same problem, and understand how the efficient one takes less time. • Data visualization using Pyplot: line chart, pie chart, and bar chart. • Data-structures: lists, stacks, queues.
4. **Unit 3**: **Data Management**
   Write a minimal Django based web application that parses a GET and POST request, and writes the fields to a file - flat file and CSV file. • Interface Python with an SQL database • SQL commands: aggregation functions – having, group by, order by.

Submit all questions answer by 15 january.

Important Questions for Class 12 Computer Science (Python) – Structured Query Language

Short Answer Type Questions

Question 1:
Write queries for (i) to (iv) and find outputs for SQL queries (v) to (viii), which are based on the tables.

Table :

VCODE	VEHICLETYPE	PERKM
V01	VOLVO BUS	150
V02	AC DELUXE BUS	125
V03	ORDINARY BUS	80
V05	SUV	30
V04	CAR	18

VEHICLE

Table : TRAVEL

CNO	CNAME	TRAVELDATE	KM	VCODE	NOP
101	K. Niwal	2015-12-13	200	V01	32
103	Fredrick Sym	2016-03-21	120	V03	45
105	Hitesh Jain	2016-04-23	450	V02	42
102	Ravi Anish	2016-01-13	80	V02	40
107	John Malina	2015-02-10	65	V04	2
104	Sahanubhuti	2016-01-28	90	V05	4
106	Ramesh Jaya	2016-04-06	100	V01	25

Note:

- PERKS is Freight Charges per kilometre.
- Km is kilometres Travelled
- NOP is number of passengers travelled in vehicle.

1. To display CNO, CNAME, TRAVELDATE from the table TRAVEL in descending order of CNO.
2. To display the CNAME of all customers from the table TRAVEL who are travelling by vechicle with code V_{01} or V_{02}
3. To display the CNO and CNAME of those customers from the table TRAVEL who travelled between '2015-1231' and '2015-05-01'.
4. To display all the details from table TRAVEL for the customers, who have travel distacne more than 120 KM in ascending order of NOE
5. SELECT COUNT (*), VCODE FROM TRAVEL GROUP BY VCODE HAVING COUNT (*) > 1;
6. SELECT DISTINCT VCODE FROM TRAVEL :
7. SELECT A.VCODE, CNAME, VEHICLETYPE FROM TRAVEL A, VEHICLE B WHERE A. VCODE = B. VCODE and KM < 90;
8. SELECT CNAME, KM*PERKM FROM TRAVEL A, VEHICLE B WHERE A.VCODE = B.VCODE AND A. VCODE 'V05';

Question 2:
Consider the following tables SCHOOL and ADMIN and answer this question :
Give the output the following SQL queries :

1. Select Designation Count (*) From Admin Group By Designation Having Count (*) <2;
2. SELECT max (EXPERIENCE) FROM SCHOOL;
3. SELECT TEACHER FROM SCHOOL WHERE EXPERIENCE >12 ORDER BY TEACHER;
4. SELECT COUNT (*), GENDER FROM ADMIN GROUP BY GENDER;

TABLE: SCHOOL

CODE	TEACHER	SUBJECT	DOJ	PERIODS	EXPERIENCE
1001	RAVI SHANKAR	ENGLISH	12/3/2000	24	10
1009	PRIYA RAI	PHYSICS	03/09/1998	26	12
1203	LIS ANAND	ENGLISH	09/04/2000	27	5
1045	YASHRAJ	MATHS	24/8/2000	24	15
1123	GANAN	PHYSICS	16/7/1999	28	3
1167	HARISH B	CHEMISTRY	19/10/1999	27	5
1215	UMESH	PHYSICS	11/05/1998	22	16

TABLE: ADMIN

CODE	GENDER	DESIGNATION
1001	MALE	VICE PRINCIPAL
1009	FEMALE	COORDINATOR
1203	FEMALE	COORDINATOR
1045	MALE	HOD
1123	MALE	SENIOR TEACHER
1167	MALE	SENIOR TEACHER
1215	MALE	HOD

Question 3:

Write SQL quarries for (i) to (iv) and find outputs for SQL queries (v) to (viii), which are based on the tables TRANSPORT and TRIE

TABLE: TRANSPORT

TCODE	TTYPE	PERKM
103	ORDINARY BUS	90
105	SUV	40
104	CAR	20
103	ORDINARY BUS	90
101	VOLVO BUS	160
102	AC DELUXE BUS	140

Note:

- PERKS is Freight Charges per kilometre
- TTYPE is Transport Vehicle Type

TABLE: TRIP

NO	NAME	TDATE	KM	TCODE	NOP
11	Tanish Khan	2015-12-13	200	101	32
13	Danish Sahai	2016-06-21	100	103	45
15	Ram Kumar	2016-02-23	350	102	42
12	Fen Shen	2016-01-13	90	102	40
17	Aan Kumar	2015-02-10	75	104	2
14	Veena	2016-06-28	80	105	4
16	Rajpal Kirti	2016-06-06	200	101	25

Note:

- NO is Driver Number
- KM is Kilometre travelled
- NOP is number of travellers travelled in vehicle
- TDATE is Trip Date

1. To display NO, NAME, TDATE from the table TRIP in descending order of NO.
2. To display the NAME of the drivers from the table TRIP who are traveling by transport vehicle with code 101 or 103.
3. To display the NO and NAME of those drivers from the table TRIP who travelled between '2015-02-10' and '2015-04-01'.
4. To display all the details from table TRIP in which the distance travelled is more than 100 KM in ascending order of NOP
5. SELECT COUNT (*), TCODE From TRIP
   GROUP BY TCODE HAVNING COUNT (*) > 1;
6. SELECT DISTINCT TCODE from TRIP;
7. SELECT A.TCODE, NAME, TTYPE
   FROM TRIP A, TRANSPORT B
   WHERE A. TCODE = B. TCODE AND KM < 90;
8. SELECT NAME, KM *PERKM
   FROM TRIP A, TRANSPORT B
   WHERE A. TCODE = B. TCODE AND A. TCODE = 105';

Question 4:
Write SQL query to add a column total price with datatype numeric and size 10, 2 in a table product.

Question 5:
Sonal needs to display name of teachers, who have "0" as the third character in their name. She wrote the following query.
SELECT NAME FROM TEACHER WHERE NAME = "$$0?";
But the query isn't producing the result. Identify the problem.

Question 6:
Deepika wants to remove all rows from the table BANK. But he needs to maintain the structure of the table. Which command is used to implement the same?

Question 7:
While creating table 'customer', Rahul forgot to add column 'price'. Which command is used to add new column in the table. Write the command to implement the same.

Question 8:
What is the use of wildcard

Question 9:

Differentiate between DELETE and DROP table commands ?

Question 1:
Write SQL commands for the queries (i) to (iv) and output for (v) & (viii) based on a table COMPANY and CUSTOMER.

COMPANY

CID	NAME	CITY	PRODUCTNAME
111	SONY	DELHI	TV
222	NOKIA	MUMBAI	MOBILE
333	ONIDA	DELHI	TV
444	SONY	MUMBAI	MOBILE
555	BLACKBERRY	MADRAS	MOBILE
666	DELL	DELHI	LAPTOP

CUSTOMER

CUSTID	NAME	PRICE	QTY	CID
101	ROHAN SHARMA	70,000	20	222
102	DEEPAK KUMAR	50,000	10	666
103	MOHAN KUMAR	30,000	5	111
104	SAHIL BANSAL	35,000	3	333
105	NEHA SONI	25,000	7	444
106	SONAL AGGARWAL	20,000	5	333
107	ARUN SINGH	50,000	15	666

1. To display those company name which are having prize less than 30000.
2. To display the name of the companies in reverse alphabetical order.
3. To increase the prize by 1000 for those customer whose name starts with „S?
4. To add one more column TOTALPRICE with decimal] 10,2) to the table customer
5. SELECT   COUNT (*) , CITY   FROM COMPANY GROUP BY CITY;
6. SELECT MIN(PRICE), MAX(PRICE) FROM CUSTOMER WHERE QTY>10;
7. SELECT AVG(QTY) FROM CUSTOMER WHERE NAME LIKE "%r%;
8. SELECT PRODUCTNAME,CITY, PRICE
FROM COMPANY, CUSTOMER WHERE
COMPANY. CID=CUSTOMER.CID AND
Question 2:
Consider the following tables SCHOOL and ADMIN and answer this question :

Table : SCHOOL

CODE	TEACHER NAME	SUBJECT	DOJ	PERIODS	EXPERIENCE
1001	Ravi Shankar	English	12/3/2000	24	10
1009	Priya Rai	Physics	03/09/1998	26	12
1203	Lisa Anand	English	09/04/2000	27	5
1045	Yashraj	Maths	24/08/2000	24	15
1123	Ganan	Physics	16/07/1999	28	3
1167	Harish B	Chemistry	19/10/1999	27	5
1215	Umesh	Physics	11/05/1998	22	16

Table: Admin

Code	Gender	Designation
1001	Male	Vice Principla
1009	Female	Co-ordinator
1203	Female	Co-ordinator
1045	Male	HOD
1123	Male	Senior Teacher
1167	Male	Senior Teacher
1215	Male	HOD

Write SQL statements for the following:

1. To display TEACHERNAME, PERIODS of all teachers whose periods are more than 25.
2. To display all the information from the table SCHOOL in descending order of experience.
3. To display DESIGNATION without duplicate entries from the table ADMIN.
4. To display TEACHERNAME, CODE and corresponding DESIGNATION from tables SCHOOL and ADMIN of Male teachers.

Question 3:
Write SQL commands for the queries (i) to (iv) and output for (v) to (viii) based on the tables Watches' and Sale given below.

Watches

Watchid	Watch_Name	Price	Type	Qty_Store
W001	High Time	10000	Unisex	100
W002	Life Time	15000	Ladies	150
W003	Wave	20000	Gents	200
W004	High Fashion	7000	Unisex	250
W004	Golden Time	25000	Gents	100

Sale

Watchid	Qty_Sold	Quarter
W001	10	1
W003	5	1
W002	20	2
W003	10	2
W001	15	3
W002	20	3
W005	10	3
W003	15	4

1. TO DISPLAY ALL THE DETAILS OF THOSE WATCHES WHOSE NAME ENDS WITH 'TIME'
2. TO DISPLAY WATCH'S NAME AND PRICE OF THOSE WATCHES WHICH HAVE PRICE RANGE IN BE-TWEEN 5000-15000.
3. TO DISPLAY TOTAL QUANTITY IN STORE OF UNISEX TYPE WATCHES.
4. TO DISPLAY WATCH NAME AND THEIR QUANTITY SOLD IN FIRST QUARTER;
5. SELECT MAX (PRICE), MIN(QTY_STORE) FROM WATCHES;
6. SELECT QUARTER, SUM(QTY SOLD) FROM SALE GROUP BY QUARTER;
7. SELECT WATCH_NAME, PRICE, TYPE FROM WATCHES W, SALE S WHERE W. WAT£H1D!=S.WATCHID; (viii) SELECT WATCH_NAME, QTYSTORE, SUM (QTY_SOLD), QTY_STORESUM (QTYSOLD) "STOCK" FROM WATCHES W, SALE S WHERE W. WATCHID = S.WATCHID GROUP BY S.WATCHID;

PHYSICAL EDUCATION

Objective Type/Multiple Choice Questions/one word answers.

1. In which year, the first Asian Games were organised in India?
2. After how many years, the Asian Games are organised?
3. Jesse Owens Trophy is related to which sports?
4. In which year, the first National Basketball Championships was held
5. Thomas cup is related to which game?
6. Name the historical cricket test series which is played between England and Australia?
7. Aga Khan Cup is related to which game?
8. FIFA Cup is related to which game?
9. In which year, the IPL related to cricket was started?
10. Wimbledon Cup is related to which game?
11. In which year 'Khelo India' programme was launched?
Fill in the blanks.
1. The aim of physical education is harmonious..................... of an individual.
2. Coaching career is a ....career is the field of physical education.
3. Nowadays, people have become more.......................conscious.
4………..opportunities are widely available in book writing in the field of physical education and sports.
5. The World Cup of Hockey for men and women was started in................. and 1974, respectively.
6.................programme has been introduced to revive the sports culture in India.
State True or False.

1. aim of physical education is harmonious development of an individual
2. Khelo India programme was launched during 2017-2018.
3. Physical fitness of school-going children is not measured under the scheme of Khelo Ind (True/False)
4. Kehlo India programme is not helpful for promoting rural games. (True/False)
Choose the correct answer.
Competitions are helpful for the development of :
(a) Social qualities (c) Sports skills (b) Selection of players (d) All the above
2. Uber Cup is related to:
(a) Table Tennis (c) Badminton (b) Lawn Tennis (d) None of these
3. Which one of the following components is not included in Khelo India Programme?
(a) Playfield development (b) Talent search and development (c) Sports for women (d) To organise Cricket Competitions
4. Which one of the following objectives is not the objective of physical education ment by H Clarke?
(a) Physical fitness (c) Social efficiency (b) Worthy use of leisure time (d) Culture
Short Answer Questions-I
1. Enlist the objectives of physical education and explain any one of them.
2. Discuss about teaching careers in physical education in brief.
3. Enumerate the objectives of physical education in brief.
4. Briefly discuss about any three International Competitions of athletics.
5. Discuss the three national competitions of cricket in brief.
6. Write down any nine tournaments of football.
7. Write down a brief note on 'Khelo India' Programme.
Short Answer Questions
1. Define physical education and explain its aim and objectives in detail.
2. What are the various career options in physical education? Discuss the teaching career in detail.
3. Elucidate the coaching career in detail.
4. Discuss the health-related and administration-related careers in detail.
5. Explain in detail the sports media related careers in the field of physical education.
6. Write short notes on any two of the following:
(a) Career in book writing. (b) Career in sports photography. (c) Career in sports industry.
7. Elaborate the 'Khelo India' Programme in detail.
Unit 7. Physiology and injuries in sports
Unit.8 biomechanics and sports
Unit.9 psychology and sports.
Unit 10.training in sports.
Complete these chapters and make notebooks. Do make a revision of all the chapters.