LIONS PUBLIC SCHOOL
I BLOCK PHASE- 1 ASHOK VIHAR DELHI:
110052
(SESSION: 2025-2026)

HOLIDAYS HOMEWORK

CLASS 11 A

ENGLISH

Section: Writing Skills

Q1.You are Riya Malhotra, the Cultural Secretary of Green Valley Public School, Sector-15, Gurugram.

Your school is organising an Inter-School Classical Dance Competition in the school auditorium.

Draft a notice informing students of Classes IX–XI about the event. Include necessary details.

Q2. You are Arjun Verma, the Sports Captain of Springfield Senior Secondary School, Raj Nagar, Ghaziabad.

The school playground will remain closed for three days due to renovation.

Write a notice informing students about the closure and alternate arrangements.

Q3. You are Aarav Mehta, residing at 12, Lake View Apartments, Sector-45, Gurugram.

Write an informal invitation to your friend Rohan inviting him to attend your birthday party on 18 January 2026 at your residence.

Q4. You are Neha Singh, residing at 21, Rose Garden, Indirapuram, Ghaziabad.

Write an informal invitation to your aunt inviting her to the wedding ceremony of your elder sister, Pooja Singh, to be held on 5 February 2026.

Q5.You are Rohan, residing at 8, Green Park, South Extension, New Delhi.

You have received an invitation to attend Aarav Mehta's birthday party but are unable to attend due to your pre-board examinations.

Write an informal reply expressing regret.

Q6. You are Ananya Gupta, residing at Flat No. 302, Pearl Apartments, Sector-62, Noida.

Write a letter to the Editor, The Times of India, New Delhi, expressing concern over the increasing problem of air pollution in metropolitan cities and suggesting solutions.

Q7. You are Rohit Mehra, residing at 45, Shanti Vihar, Rohini, New Delhi.

Write an application to the HR Manager, Bright Future Institute, Pitampura, New Delhi, applying for the post of Part-time English Content Writer, in response to an advertisement in The Hindustan Times.

Q8.Write an article for your school magazine on the topic:

"Social Media: A Boon or a Curse for Teenagers"

You are Simran Kaur, a student of Class XI, St. Xavier's Senior Secondary School, Chandigarh.

Q9. You are Kabir Sharma, the Student Reporter of Modern Public School, Jaipur.

Write a report on the Career Counselling Workshop organised in your school for Class XI students.

PHYSICS

1. Learn ch 11, 14 and 15

2. Do the worksheet given in class.

3. Complete practical file.

COMPUTER SCIENCE

1. Practice questions related to Dictionaries and Tuples.
2. Write a program to check whether a given key exists in a dictionary.
3. Write a program to count the **frequency of each character** in a string.
4. Write a program to create a dictionary from two lists:

CHEMISTRY

General Instructions:

1. This question paper consists of 33 questions in 5 sections.
2. All questions are compulsory. However, an internal choice is provided in some questions.
3. Section A consists of 12 objective type questions and 4 assertion-reason questions, carrying 1 mark each.
4. Section B consists of 5 Very Short questions carrying 02 marks each.
5. Section C consists of 7 Short Answer type question carrying 03 marks each.
6. Section D consists of 3 Long Answer type questions carrying 05 marks each.
7. Section E consists of 2 source-based/case-based units of assessment of 04 marks each with sub-parts.
8. Use of log tables and calculators is not allowed.

SECTION-A

Q1. The designation of an orbital with n = 4 and 1 = 3: **(1)**

a) 4s b) 4p c) 4d d) 4f

Q2. According to modern periodic law, the physical and chemical properties of elements are the periodic functions of their? **(1)**

a) Density b) Atomic Number c) Mass Number d) Atomic Mass

Q3. What is the maximum number of water molecules that can attach with one water molecule through intermolecular hydrogen bonds? **(1)**

a) 2 b) 3 c) 4 d) 1

Q4. Number of atoms of He in 100 u of He (Atomic mass of He is 4 u): **(1)**

a) 25 b) 50 c) 100 d) 400

Q5. A thermodynamic state function is a quantity: **(1)**

a) used to determine heat changes b) whose value is independent of the path
c) used to determine pressure-volume work d) whose value depends on temperature only

Q6. The enthalpies of all elements in their standard states are:
(1)

a) Unity b) Different for every element c) < 0 d) Zero

Q7. If 'p' M is the solubility of $KAl(SO_4)_2$, then Ksp is equal to:
(1)

a) p^3 b) $4p^4$ c) p^4 d) $4p^3$

Q8. Which of the following molecule has zero dipole moment?
(1)

a) HF b) H_2O c) BF_3 d) $CHCl_3$

Q9. The oxidation number of X, Y, Z are +2, +5and -2 respectively. The formula of the compound formed by these will be:
(1)

a) X_2YZ_6 b) XY_2Z_6 c) XY_5 d) X_3YZ_4

Q10. In the reaction: $3Br_2 + 6CO_3^{2-} + 3H_2O \rightarrow 5Br^- + BrO_3^- + 6HCO_3^-$
(1)

a) Bromine is oxidised and carbonate is reduced b) Bromine is reduced and water is oxidised
c) Bromine is neither reduced nor oxidized d) Bromine is both reduced and oxidised

Q11. Which of the following is the correct IUPAC name?
(1)

a) 3-ethyl-4,4-dimethylheptane b) 4,4- dimethyl-3-ethylheptane
c) 5-ethyl-4,4-dimethylheptane d) 4,4- bis(dimethyl)-3-ethylheptane

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Q12. Quantitative measurement of nitrogen in an organ is compound is done by the method:
(1)

a) Berthelot method b) Lassaigne method
c) Carius method d) Kjehldahl method

Question No. 13 to 16 are Assertion Reason type questions:

a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.
e) A is false and R is false.

Q13. **Assertion (A):** Though the central atom of both NH_3 and H_2O molecules are sp^3 hybridised, yet H–N–H bond angle is greater than that of H–O–H.
Reason (R): This is because nitrogen atom has one lone pair and oxygen atom has two lone pairs.
(1)

Q14. **Assertion (A):** Ionic radius of Na^+ is smaller than Na.
Reason (R): Effective nuclear charge of Na^+ is higher than Na. **(1)**

Q15. **Assertion (A):** Spontaneous process is an irreversible process and may be reversed by some external agency.
Reason (R): Decrease in enthalpy is a contributory factor for spontaneity.
(1)

Q16. **Assertion (A):** H_2SO_4 cannot act as a reducing agent.
Reason (R): Sulphur can increase its oxidation number beyond +6. **(1)**

SECTION-B

Q17. Calculate the standard enthalpy of formation of CH_3OH (l) from the following data:
(2)

$CH_3OH(l) + 3/2\ O_2(g) \rightarrow CO_2(g) + 2H_2O(l)$

a) $CH_3OH(l) + 3/2\ O_2\ (g) \rightarrow CO_2\ (g) + 2H_2O\ (l)$; $\Delta_rH = -726 kj\ mol^{-1}$

b) $C(s) + O_2(g) \rightarrow CO_2\ (g)$; $\Delta_cH = -393\ kj\ mol^{-1}$

c) $H_2(g) + 1/2O_2(g) \rightarrow H_2O\ (l)$; $\Delta_fH = -286\ kj\ mol^{-1}$

Q18. What will be the molarity of a solution, which contains 5.85 g of NaCl(s) per 500 mL?

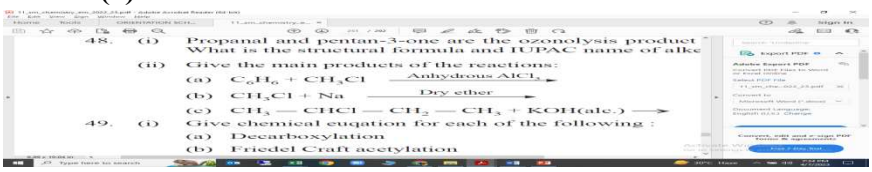
(2)

Q19. Calculate the wavenumber for the longest wavelength transition in the Balmer series of atomic hydrogen.

(2)

Q20. Give the main products of the reaction:

(2)



OR

0.3780 g of an organic chloro compound gave 0.5740 g of silver chloride in Carius estimation.

Calculate the percentage of chlorine present in the compound.

Q21. Identify the redox reactions out of the following reactions and identify the oxidising and reducing agents in them. **(Attempt Any 2)**

(2)

a) $3HCl + HNO_3 \rightarrow Cl_2 + NOCl + 2H_2O$

b) $HgCl_2 + 2KI \rightarrow HgI + 2KCl$

c) $PCl_3 + 3H_2O \rightarrow 3HCl + H_2PO_3$

(2)

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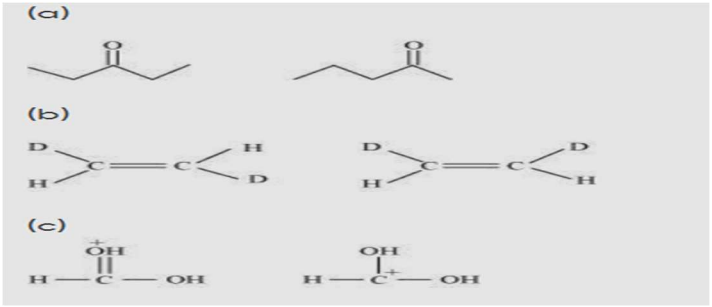
SECTION-C

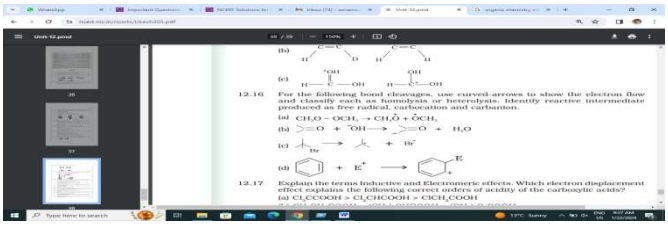
Q22. What is the relationship between the members of the following pairs of structures? Are they structural or geometrical isomers or resonance contributors?

(3)



OR

For the following bond cleavages, use curved-arrows to show the electron flow and classify each as homolysis or heterolysis. Identify reactive intermediate produced as free radical, carbocation and carbanion.



Q23. Write structures along with IUPAC name of all the alkenes which on hydrogenation give 2 -methylbutane.

(3)

Q24. Write a balanced chemical equation for the following reactions by using ion electron method:

$MnO_4^- + SO_2 \rightarrow Mn^{2+} + HSO_4^-$ (acidic medium)

(3)

OR

$Fe^{2+} + Cr_2O_7^{2-} + H^+ \rightarrow Fe^{3+} + Cr^{3+} + H_2O$

Q25. A mixture of 1 mole of Al and 3 mole of Cl_2 are allowed to react as:

(3)

$2Al + 3Cl_2 \longrightarrow 2AlCl_3$

a) Which is limiting reagent?

b) How many moles of $AlCl_3$ are formed?

c) Moles of excess reagent left unreacted.

Q26. Attempt any three from the following: **(1*3)**

a) Why Li and Mg show resemblance in chemical behaivour?

b) The atomic radius of elements decreases along the period but Neon has highest size among III period element? Why

c) Arrange the following elements in the increasing order of metallic character: Si, Be, Mg, Na, P.

Q27.a) By using Born-Haber cycle, calculate the enthalpy of formation of NaBr. **(2+1)**

b) Define Hess Law.

Q28. Does the number of moles of reaction products increase, decrease or remain the same when each of the following equilibria is subjected to a decrease in pressure by increasing the volume? **(3)**

(3)

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a) $PCl_5(g) \rightleftharpoons PCl_3(g) + Cl_2(g)$

b) $CaO(s) + CO_2(g) \rightleftharpoons CaCO_3(s)$

c) $3Fe(s) + 4H_2O(g) \rightleftharpoons Fe_3O_4(s) + 4H_2(g)$

SECTION-D

Q29. Draw molecular orbital diagram of N_2, O_2 and Be_2. Arrange them in increasing order of their bond strength and magnetic behaviour.

(5)

OR

Describe the hybridisation of PCl_5 and SF_6 by using Valence Bond Theory. State the reason axial bonds are longer as compared to the equatorial bond in PCl_5 whereas in SF_6 both axial and equatorial bonds have the same bond length.

Q30. a) An alkene 'A' on ozonolysis gives a mixture of ethanal and pentan-3- one. Write structure and

IUPAC name of 'A'.

(1+2+2)

b) Explain why the following systems are not aromatic?

c) What is the effect of alcoholic KOH and Aqueous KOH in Propene.

OR

a) How would you convert Ethyne into benzene? Support your answer with the help of chemical reaction. b) Arrange benzene, n-hexane and ethyne in decreasing order of acidic behaviour. Also give reason for this behaviour.

c) Out of cis and trans structures of hex-2-ene which isomer will have higher b.p. and why?

Q31. a) The equilibrium constant, K_c, for the reaction:

$N_2(g)+3H_2(g) \rightleftharpoons 2NH_3$ at 500 K is 0.061

At a specific time, from the analysis, we can conclude that the composition of the reaction mixture is 3.0 mol L^{-1} N_2, 2.0 mol L^{-1} H_2 and 0.5 mol L^{-1} NH_3. Find out whether the reaction is at equilibrium or not. Find in which direction the reaction proceeds to reach equilibrium.

(3)

b) What is conjugate acid-base pair? Find the conjugate acid/base of the given: HNO_2 , CN^-

(2)

OR

a) The pH of a sample of vinegar is 3.76. Calculate the concentration of hydrogen ion in it.
{log(3.76)= 0.5751 , antilog(-3.76)= 0.000178}

(2)

b) Predict if the solutions of the following salts are neutral, acidic or basic:
NaCl, KBr, NaCN, NH_4NO_3, $NaNO_2$ and KF

(3)

SECTION -E

Q32. **Read the Passage and answer the following questions:**

(1x4)

A large number of orbitals are possible in an atom. Qualitatively these orbitals can be distinguished by their size, shape and orientation. An orbital of smaller size means there is more chance of finding the electron near the nucleus. Similarly, shape and orientation mean that there is more probability of finding the electron along with certain directions than along others. The principal quantum number determines the size and to large extent the energy of the orbital. Azimuthal quantum number, 'l' is also known as orbital angular momentum or subsidiary quantum number. It defines the three-dimensional shape of the orbital. Each shell consists of one or more subshells or sub-levels. The number of sub-shells in a principal shell is

(4)

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equal to the value of n. Magnetic orbital quantum number. 'm_l ' gives information about the spatial orientation of the orbital with respect to a standard set of co-ordinate axis. The fourth quantum number is known as the electron spin quantum number (m_s). An electron spins around its own axis, much in a similar way as the earth spins around its own axis while revolving around the sun.

a) the magnetic quantum number of an atom is related to the:

i) size of the orbital

ii) spin angular momentum

iii) orbital angular momentum

iv) orientation of the orbital in space

b) Which of the following statements in relation to the hydrogen atom is correct?
i) 3s-orbital is lower in energy than 3p-orbital
ii) 3p-orbital is lower in energy than 3-d-orbital
iii) 3s and 3p orbitals all have the same energy
iv) 3s, 3p and 3d orbitals all have the same energy
c) The principal quantum number of an atom is related to the:
i) size of the orbital ii) spin angular momentum
iii) orbital angular momentum iv) orientation of the orbital in Spence
d) Based on the concept of quantum numbers mentioned in the study, which of the following value
sets of quantum numbers are not possible?
i) n=0, l=0, m_l = 0, m_s = -1/2 ii) n=5, l=3, m_l = -4, m_s = +1/2
iii) n=3, l=1, m_l = -1, m_s = -1/2 iv) n=6, l=1, m_l = 0, m_s = +1/2

Q33. **Read the Passage and answer the following questions:**
(1x4)

The rotation of carbon-carbon single bond (s-bond), due to cylindrical symmetry of s-MOs (molecular orbitals) long internuclear axis, in alkanes results into different spatial arrangements of atoms in space that are interconvertible. These arrangements are called conformations. However, weak repulsive interaction are present between the adjacent bonds in alkanes so the rotation of C—C single bond is not completely free and is hindered by a small energy barriers of 1-20 kJ mol^{-1}. The repulsive interaction between the adjacent bond is due to electron cloud. The two types of conformations are very common, i.e., staggered and eclipsed. The conformation in which the hydrogen atoms attached to the two carbon atoms are as far apart as possible is called the staggered conformation. The conformations in which the hydrogen atoms attached to the two carbon atoms are as closed as possible is called eclipsed conformation. Any intermediate conformation between the above two is called skew or gauche conformation

a) The electronic distribution of the sigma molecular orbital is symmetrical around the internuclear axis of C-C bond which permits free rotation around C-C bond. Such spatial arrangements of atoms in which conversion of one another takes place by rotation around C-C bond is known as
i) rotamers ii) conformers iii) conformations iv) All of these
b) The possible rotamers of ethane is/are
i) 2 ii) 3 iii) 4 iv) ∞
c) The different conformations of ethane cannot be separated and isolated because
i) small energy barrier ii) large energy barrier
iii) Both (i) and (ii) iv) Neither (i) nor (ii)
d) The repulsive interaction between the electron clouds, which affects stability of a conformation is termed as
i) torsional strain ii) dihedral angle
iii) torsional angle iv) conformation

XXXXXXX

MATHS

1. Revise all the chapters done in the class.
2. Solve the assignment of Derivatives given in the class.