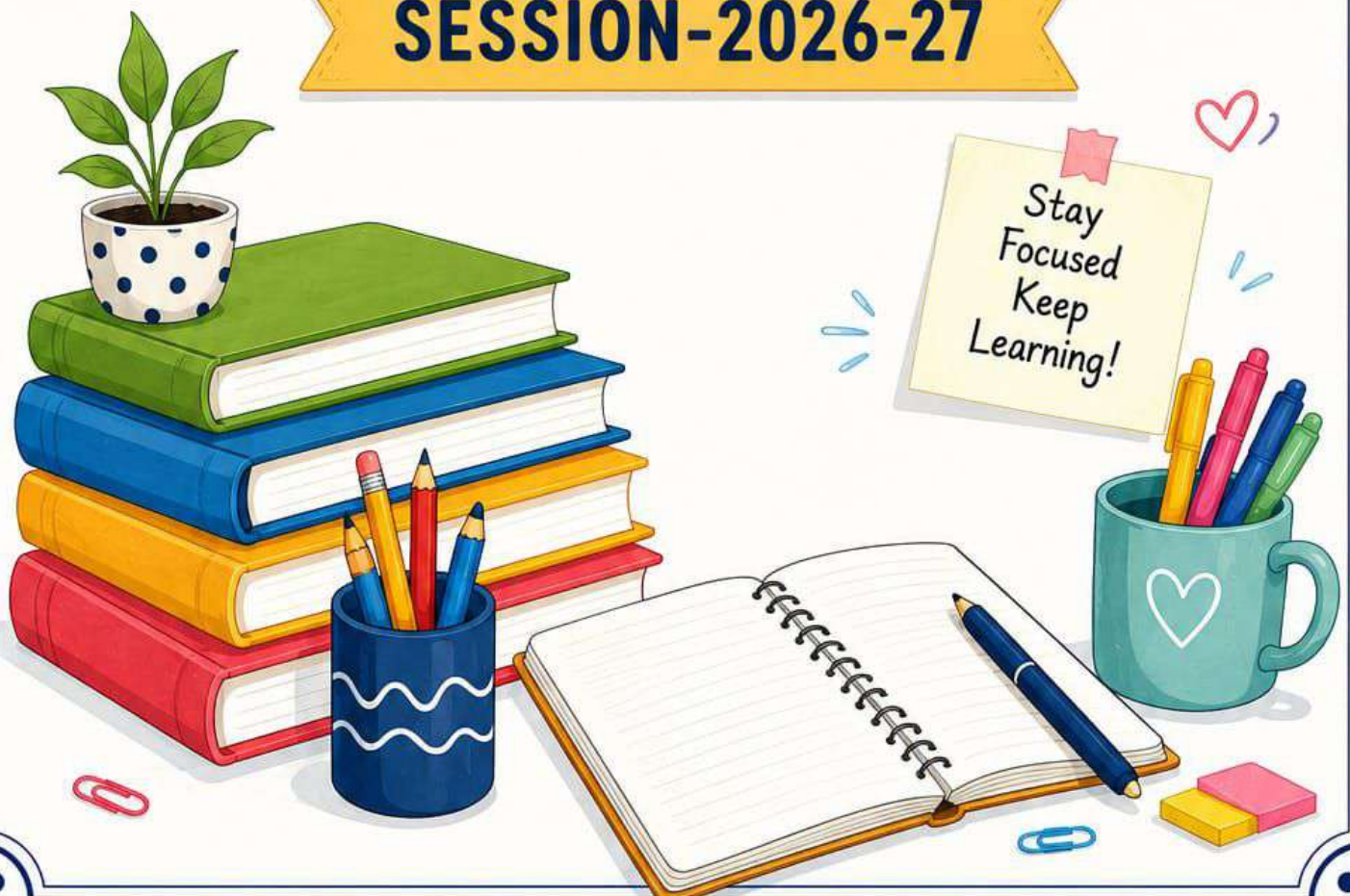


GURU NANAK INTERNATIONAL PUBLIC SCHOOL

HOLIDAYS HOMEWORK

CLASS-XI (SCIENCE)

SESSION-2026-27



GURU NANAK INTERNATIONAL PUBLIC SCHOOL BRS NAGAR , BLOCK- I LUDHIANA

• SESSION 2026-2027 •

Holidays Home work

• CLASS +1 , SUBJECT- HINDUSTANI MUSIC VOCAL •

- ★ Prepare practical file and write Taals in Notation with thah , dugun , Tigun and chaugun layakaries of Dhamar, roopak , jhaptala



- ★ Write Raga Bhairav with its description and drut khayal



- ★ Its mandatory to make two charts of your own choice on A3 Size sheet from the following instruments and vocalists
Guitar, Harmonium, tabla, violin, piano, keyboard, flute , shehnai and sitar

Singers- Lata Mageshkar ji, Asha bhosle ji, Shreya ghoshal, Arijit singh, RD burman and Alka yagnik



Please note you can choose any two topics
Like you can take **2** instruments or **2** singers
Either you can go for **1** instrumental or
1 vocalist chart as well...



All the best
and stay hale and hearty



■ Holiday Homework – Class 11 (Information Technology)

Units: Computer Organization & Communication Skills

■■ Q1. Create a Chart / Model

Make a colorful chart or 3D model on any ONE topic:

- Block Diagram of Computer System
- Input & Output Devices (with pictures)
- Memory Units (Primary vs Secondary)
- CPU Components (ALU, CU, Registers)

This chart will be used later for classroom decoration.

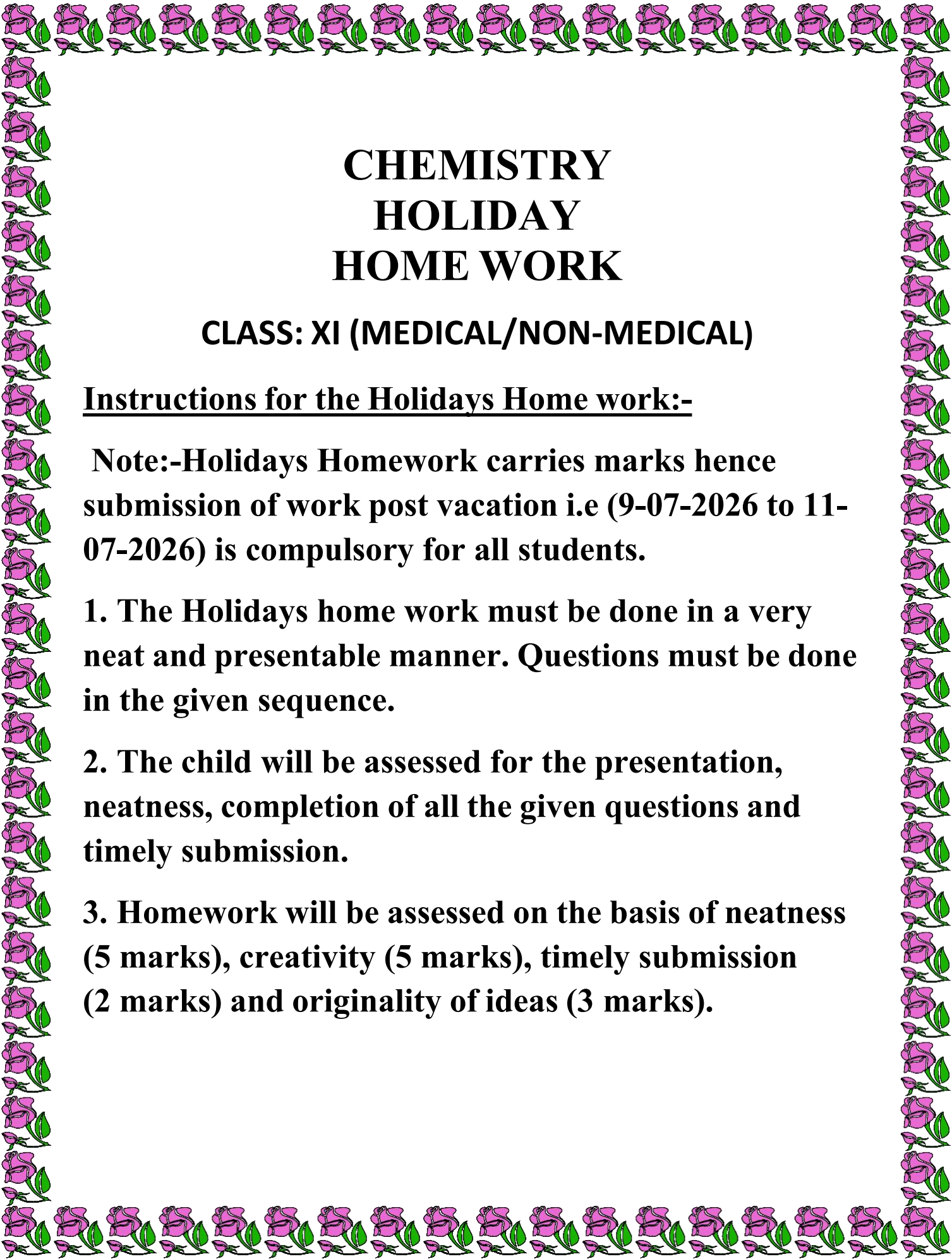
■ Q2. Case Study Activity

Visit your home or a nearby shop/school office and observe:

- Types of computers used
- Input/output devices used
- Storage devices used

Write a 1–2 page report including:

- Observations
- Importance of each component
- Your learning



CHEMISTRY HOLIDAY HOME WORK

CLASS: XI (MEDICAL/NON-MEDICAL)

Instructions for the Holidays Home work:-

Note:-Holidays Homework carries marks hence submission of work post vacation i.e (9-07-2026 to 11-07-2026) is compulsory for all students.

- 1. The Holidays home work must be done in a very neat and presentable manner. Questions must be done in the given sequence.**
- 2. The child will be assessed for the presentation, neatness, completion of all the given questions and timely submission.**
- 3. Homework will be assessed on the basis of neatness (5 marks), creativity (5 marks), timely submission (2 marks) and originality of ideas (3 marks).**

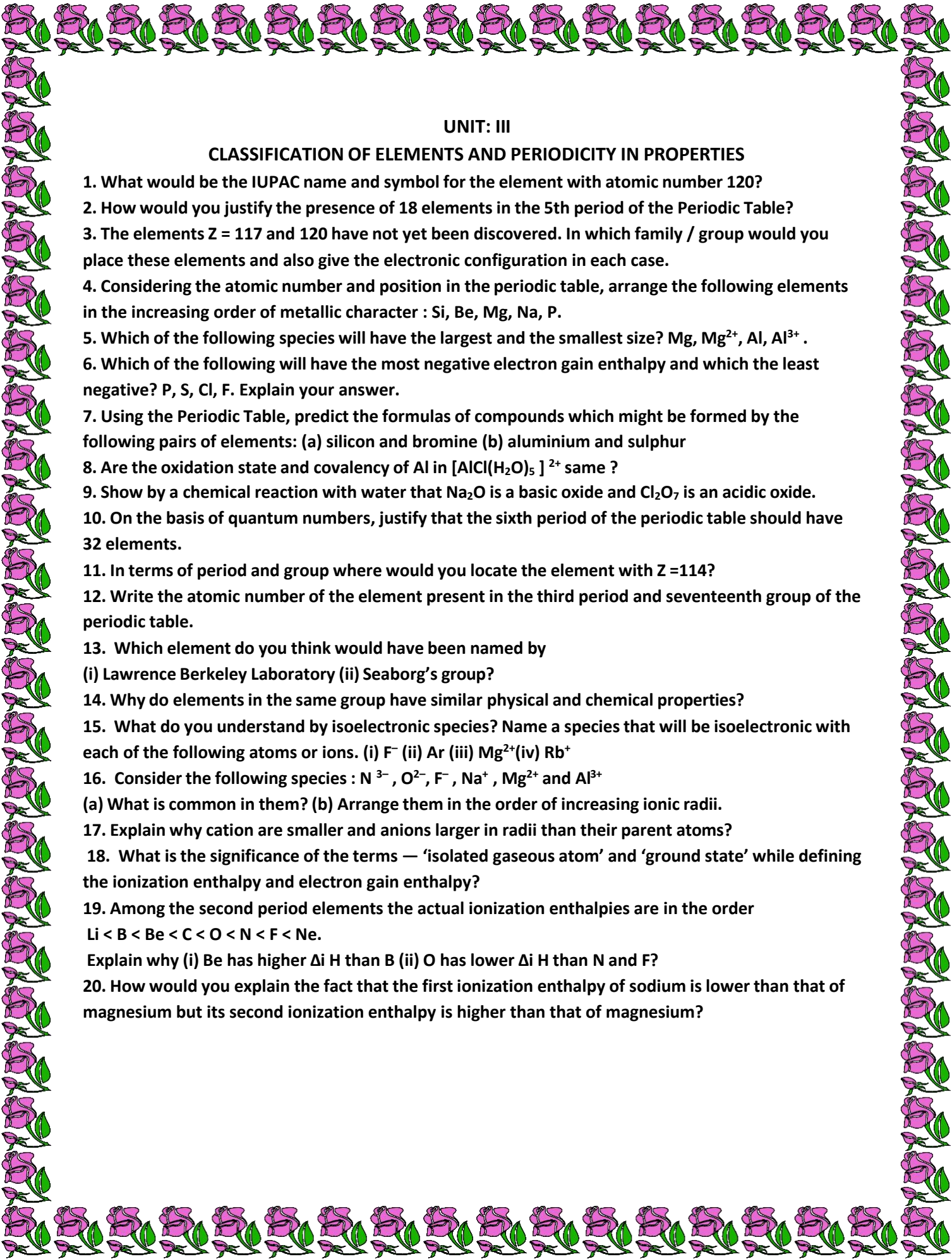
GURU NANAK INTERNATIONAL PUBLIC SCHOOL

UNIT: II

STRUCTURE OF ATOM

1. The number of electrons, protons and neutrons in a species are equal to 18, 16 and 16 respectively. Assign the proper symbol to the species.
2. Calculate (a) wavenumber and (b) frequency of yellow radiation having wavelength 5800 Å.
3. The VividhBharati station of All India Radio, Delhi, broadcasts on a frequency of 1,368 kHz (kilo hertz). Calculate the wavelength of the electromagnetic radiation emitted by transmitter. Which part of the electromagnetic spectrum does it belong to?
4. The wavelength range of the visible spectrum extends from violet (400 nm) to red (750 nm). Express these wavelengths in frequencies (Hz). ($1\text{nm} = 10^{-9}\text{ m}$)
5. A 100 watt bulb emits monochromatic light of wavelength 400 nm. Calculate the number of photons emitted per second by the bulb.
6. The threshold frequency ν_0 for a metal is $7.0 \times 10^{14}\text{ s}^{-1}$. Calculate the kinetic energy of an electron emitted when radiation of frequency $\nu = 1.0 \times 10^{15}\text{ s}^{-1}$ hits the metal.
7. Calculate energy of one mole of photons of radiation whose frequency is $5 \times 10^{14}\text{ Hz}$.
8. What are the frequency and wavelength of a photon emitted during a transition from $n = 5$ state to the $n = 2$ state in the hydrogen atom?
9. Calculate the energy associated with the first orbit of He^+ . What is the radius of this orbit?
10. What will be the wavelength of a ball of mass 0.1 kg moving with a velocity of 10 m s^{-1} ?
11. The mass of an electron is $9.1 \times 10^{-31}\text{ kg}$. If its K.E. is $3.0 \times 10^{-25}\text{ J}$, calculate its wavelength.
12. Calculate the mass of a photon with wavelength 3.6 Å.
13. A microscope using suitable photons is employed to locate an electron in an atom within a distance of 0.1 Å. What is the uncertainty involved in the measurement of its velocity?
14. A golf ball has a mass of 40g, and a speed of 45 m/s. If the speed can be measured within accuracy of 2%, calculate the uncertainty in the position.
15. What is the total number of orbitals associated with the principal quantum number $n = 3$?
16. Using s, p, d, f notations, describe the orbital with the following quantum numbers
(a) $n = 2, l = 1$, (b) $n = 4, l = 0$, (c) $n = 5, l = 3$, (d) $n = 3, l = 2$
17. (i) Calculate the number of electrons which will together weigh one gram.
(ii) Calculate the mass and charge of one mole of electrons.
18. Write the complete symbol for the atom with the given atomic number (Z) and atomic mass (A)
(i) $Z = 17, A = 35$. (ii) $Z = 92, A = 233$. (iii) $Z = 4, A = 9$.
19. Yellow light emitted from a sodium lamp has a wavelength (λ) of 580 nm. Calculate the frequency (ν) and wavenumber ($\bar{\nu}$) of the yellow light.
20. Calculate the wavelength, frequency and wavenumber of a light wave whose period is $2.0 \times 10^{-10}\text{ s}$.
21. A photon of wavelength $4 \times 10^{-7}\text{ m}$ strikes on metal surface, the work function of the metal being 2.13 eV. Calculate (i) the energy of the photon (eV), (ii) the kinetic energy of the emission, and (iii) the velocity of the photoelectron ($1\text{ eV} = 1.6020 \times 10^{-19}\text{ J}$).
22. A 25 watt bulb emits monochromatic yellow light of wavelength of 0.57 μm . Calculate the rate of emission of quanta per second.

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23. What is the wavelength of light emitted when the electron in a hydrogen atom undergoes transition from an energy level with $n = 4$ to an energy level with $n = 2$?
24. What is the maximum number of emission lines when the excited electron of a H atom in $n = 6$ drops to the ground state?
25. (i) The energy associated with the first orbit in the hydrogen atom is $-2.18 \times 10^{-18} \text{ J atom}^{-1}$. What is the energy associated with the fifth orbit?
(ii) Calculate the radius of Bohr's fifth orbit for hydrogen atom.
26. Calculate the wavenumber for the longest wavelength transition in the Balmer series of atomic hydrogen.
27. Which of the following are isoelectronic species i.e., those having the same number of electrons?
 Na^+ , K^+ , Mg^{2+} , Ca^{2+} , S^{2-} , Ar
28. (i) Write the electronic configurations of the following ions:
(a) H^- (b) Na^+ (c) O^{2-} (d) F^- (e) Zn^{2+} (f) Cr^+ (g) Fe^{2+} (h) Ni^{2+}
(ii) What are the atomic numbers of elements whose outermost electrons are represented by
(a) $3s^1$ (b) $2p^3$ and (c) $3p^5$?
(iii) Which atoms are indicated by the following configurations?
(a) $[\text{He}] 2s^1$ (b) $[\text{Ne}] 3s^2 3p^3$ (c) $[\text{Ar}] 4s^2 3d^1$.
29. What is the lowest value of n that allows g orbitals to exist?
30. An electron is in one of the $3d$ orbitals. Give the possible values of n , l and m_l for this electron.
31. Using s , p , d notations, describe the orbital with the following quantum numbers.
(a) $n=1, l=0$; (b) $n=3, l=1$ (c) $n=4, l=2$; (d) $n=4, l=3$.
32. Show that the circumference of the Bohr orbit for the hydrogen atom is an integral multiple of the de Broglie wavelength associated with the electron revolving around the orbit.
33. The diameter of zinc atom is $2.6 \text{ \AA}$. Calculate (a) radius of zinc atom in pm and (b) number of atoms present in a length of 1.6 cm if the zinc atoms are arranged side by side lengthwise.
34. In Rutherford's experiment, generally the thin foil of heavy atoms, like gold, platinum etc. have been used to be bombarded by the α -particles. If the thin foil of light atoms like aluminium etc. is used, what difference would be observed from the above results?
35. An element with mass number 81 contains 31.7% more neutrons as compared to protons. Assign the atomic symbol.
36. An ion with mass number 37 possesses one unit of negative charge. If the ion contains 11.1% more neutrons than the electrons, find the symbol of the ion.
37. An ion with mass number 56 contains 3 units of positive charge and 30.4% more neutrons than electrons. Assign the symbol to this ion.
38. What are the differences between Orbit and Orbital?
39. Nitrogen laser produces a radiation at a wavelength of 337.1 nm . If the number of photons emitted is 5.6×10^{24} , calculate the power of this laser.
40. Among the following pairs of orbitals which orbital will experience the larger effective nuclear charge? (i) $2s$ and $3s$, (ii) $4d$ and $4f$, (iii) $3d$ and $3p$.
41. Indicate the number of unpaired electrons in : (a) P, (b) Si, (c) Cr, (d) Fe and (e) Kr.



UNIT: III

CLASSIFICATION OF ELEMENTS AND PERIODICITY IN PROPERTIES

1. What would be the IUPAC name and symbol for the element with atomic number 120?
2. How would you justify the presence of 18 elements in the 5th period of the Periodic Table?
3. The elements $Z = 117$ and 120 have not yet been discovered. In which family / group would you place these elements and also give the electronic configuration in each case.
4. Considering the atomic number and position in the periodic table, arrange the following elements in the increasing order of metallic character : Si, Be, Mg, Na, P.
5. Which of the following species will have the largest and the smallest size? Mg, Mg^{2+} , Al, Al^{3+} .
6. Which of the following will have the most negative electron gain enthalpy and which the least negative? P, S, Cl, F. Explain your answer.
7. Using the Periodic Table, predict the formulas of compounds which might be formed by the following pairs of elements: (a) silicon and bromine (b) aluminium and sulphur
8. Are the oxidation state and covalency of Al in $[AlCl(H_2O)_5]^{2+}$ same ?
9. Show by a chemical reaction with water that Na_2O is a basic oxide and Cl_2O_7 is an acidic oxide.
10. On the basis of quantum numbers, justify that the sixth period of the periodic table should have 32 elements.
11. In terms of period and group where would you locate the element with $Z = 114$?
12. Write the atomic number of the element present in the third period and seventeenth group of the periodic table.
13. Which element do you think would have been named by
(i) Lawrence Berkeley Laboratory (ii) Seaborg's group?
14. Why do elements in the same group have similar physical and chemical properties?
15. What do you understand by isoelectronic species? Name a species that will be isoelectronic with each of the following atoms or ions. (i) F^- (ii) Ar (iii) Mg^{2+} (iv) Rb^+
16. Consider the following species : N^{3-} , O^{2-} , F^- , Na^+ , Mg^{2+} and Al^{3+}
(a) What is common in them? (b) Arrange them in the order of increasing ionic radii.
17. Explain why cation are smaller and anions larger in radii than their parent atoms?
18. What is the significance of the terms — 'isolated gaseous atom' and 'ground state' while defining the ionization enthalpy and electron gain enthalpy?
19. Among the second period elements the actual ionization enthalpies are in the order $Li < B < Be < C < O < N < F < Ne$.
Explain why (i) Be has higher $\Delta_i H$ than B (ii) O has lower $\Delta_i H$ than N and F?
20. How would you explain the fact that the first ionization enthalpy of sodium is lower than that of magnesium but its second ionization enthalpy is higher than that of magnesium?

Make a project report on given topics.

1. Oxalate Ion Presence in Guava Fruit at Different Ripening Stages.
2. Paper Chromatography.
3. Casein Presence Quality in Different Milk Samples.
4. Determination of contents in cold drinks.
5. Determining the amount of phosphate in detergents.
6. Sterilization of Water Using Bleaching Powder.
7. Preparation of alum from scrap aluminum:
A practical project involving the synthesis of alum.
8. Analysis of Fertilizer

Holiday homework of Physical Education

Prepare practical file

- 1. Athletic track marking and theory**
- 2. Any one game from your practical file marking and theory**
- 3. Any 5 Yoga asanas**

GURU NANAK INTERNATIONAL PUBLIC SCHOOL

CLASS- XI SUBJECT-MATHS HOLIDAYS' HOMEWORK

Students let us utilise this time by doing some activities so that your interest for the subject does not fade away.

Task :- Do the Activities creatively

Comprehensive Math lab manual and do any 15 projects. Graph papers should be properly stuck and graphs should be neatly plotted

Make a 3-D mathematical model using maximum 2-d shapes and 3-d figures. Try to make working model.

Ch.5 - Complex Numbers

Complex Numbers

WORKSHEET-I

- $\left(\frac{1}{3} + 3i\right)^i$
- $\left(-2 - \frac{1}{3}i\right)$
- $\sqrt{5} + 3i$
- Express the following expression in the form of $a + ib$:

$$\frac{(3 + i\sqrt{5})(3 - i\sqrt{5})}{(\sqrt{5} + \sqrt{2}i) - (\sqrt{5} - i\sqrt{2})}$$
- Convert the complex number $\frac{-6}{1 + i\sqrt{3}}$ into polar form. $\left[8\left(\cos \frac{2\pi}{3} + i \sin \frac{2\pi}{3}\right)\right]$
- $-1 - i$
- $\sqrt{3} + i$
- Find the modulus and argument of the complex numbers:
 (i) $\frac{1+i}{1-i}$
 (ii) $\frac{1}{1+i}$ [(i) $\frac{\pi}{2}$ (ii) $\frac{-\pi}{4}$]
- Find real θ such that $\frac{3 + 2i \sin \theta}{1 - 2i \sin \theta}$ is purely real. [$\theta = n\pi, n \in \mathbb{Z}$]
- Convert the complex number $\frac{i-1}{\cos \frac{\pi}{3} + i \sin \frac{\pi}{3}}$ in the polar form. $\left[\sqrt{2}\left(\cos \frac{5\pi}{12} + i \sin \frac{5\pi}{12}\right)\right]$
- For any two complex numbers z_1 and z_2 , prove that $\operatorname{Re}(z_1 z_2) = \operatorname{Re} z_1 \operatorname{Re} z_2 - \operatorname{Im} z_1 \operatorname{Im} z_2$
- If $x - iy = \sqrt{\frac{a - ib}{c - id}}$ prove that $(x^2 + y^2)^2 = \frac{a^2 + b^2}{c^2 + d^2}$
- Convert the following in the polar form:
 (i) $\frac{1-7i}{(2-i)^2}$
 (ii) $\frac{1+3i}{1-2i}$
- Let $z_1 = 2 - i$, $z_2 = -2 + i$. Find
 (i) $\operatorname{Re}\left(\frac{z_1 z_2}{z_1}\right)$
 (ii) $\operatorname{Im}\left(\frac{1}{z_1 z_2}\right)$
- If $(x + iy)^3 = u + iv$, then show that $\frac{u}{x} + \frac{v}{y} = 4(x^2 - y^2)$
- If α and β are different complex numbers with $\beta \neq 1$, then find $\left|\frac{\beta - \alpha}{1 - \bar{\alpha}\beta}\right|$
- If $(a + ib)(c + id)(e + if)(g + ih) = A + iB$, then show that $(a^2 + b^2)(c^2 + d^2)(e^2 + f^2)(g^2 + h^2) = A^2 + B^2$

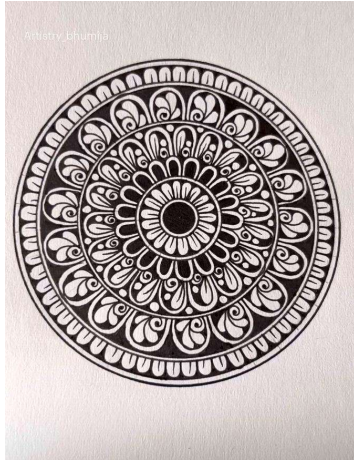
Ch.6 Linear Inequalities

WORKSHEET-I

1. Solve the following systems of inequations graphically:
 - (i) $2x + y \geq 8, x + 2y \geq 8, x + y \leq 6$
 - (ii) $12 + 12y \leq 840, 3x + 6y \leq 300, 8x + 4y \leq 480, x \geq 0, y \geq 0$
 - (iii) $x + 2y \leq 40, 3x + y \geq 30, 4x + 3y \geq 60, x \geq 0, y \geq 0$
 - (iv) $5x + y \geq 10, 2x + 2y \geq 10, x + 4y \geq 12, x \geq 0, y \geq 0$
2. Show that the following system of linear equations has no solutions:
 $x + 2y \leq 3, 3x + 4y \geq 12, x \geq 0, y \geq 1$
3. $3x - 2y \leq x + y - 8$
4. Find the pairs of consecutive odd positive integers, both of which are smaller than 10, such that their sum is more than 11.
5. To receive grade 'A' in a course, one must obtain an average of 9 marks or more in five papers each of 100 marks. If Shikha scored 87, 95, 92 and 94 marks in first four papers, find the minimum marks that she must score in the last paper to get grade 'A' in the course.
6. How many litres of water will have to be added to 1125 litres of the 45% solution of acid so that the resulting mixture will contain more than 25% but less than 3% acid content?
7. A solution of 8% boric acid is to be diluted by adding a 2% boric acid solution to it. The resulting mixture is to be more than 4% but less than 6% boric acid. If there are 64 litres of the 8% solution, how many litres of 2% solution will have to be added?
8. The water acidity in a pool is considered normal when the average pH reading of three daily measurements is between 7.2 and 7.8. If the first two pH reading are 7.48 and 7.85, find the range of pH value for the third reading that will result in the acidity level being normal.
9. $|x + 1| + |x| > 3$
10. $|x + 1| + |x - 2| + |x - 3| \geq 6$
11. $\frac{1}{|x| - 3} \leq \frac{1}{2}$
12. $1 \leq |x - 2| \leq 3$

Guru Nanak International Public School
I-Block BRS Nagar Ludhiana
Class- XI
Holidays Homework

1. Draw Madala Art on A3 size ivory sheet.



2. Make a Bottle Art with shilpkar(mould it clay).

