1. Write different types of Public Notices on a chart paper.

2. Make Posters on the following topics:
   1. Save Environment
   2. Patriotism
   3. Child Labour
   4. Communal Harmony
   5. Announcement of Courses/Classes.

1. What is Geography? Describe the various branches of Geography.

2. Explain the evolution of Atmosphere and Hydrosphere.

3. What are the effects of Earthquake?

4. What are the evidences in support of the continental drift theory?

5. Explain the importance of mineral for human development.

6. What do you mean by Primary Rocks? Explain the rock cycle.

7. What is weathering. Explain the various types of weathering.

8. How soil is formed? Explain the various factors formation soil.

9. Describe in brief direct and indirect sources of information about the interior of earth.

10. Explain the Big bang theory origin of Universe.
1. What were the adverse impacts of the destruction of Indian handicraft industries by the British rulers during colonial period.

2. What were the main reasons for slow growth of economy during British rule.

3. Explain how was Zamindari System an important cause of agricultural stagnation during colonial period.


5. Explain the agrarian reforms undertaken for the development of agriculture sector.

6. The mean marks obtained in an examination by a group of 100 students were found to be 49.46. The mean marks obtained in the same examination by another group of 200 students were 52.32. Find out the mean of marks obtained by both the groups of students taken together.

7. The mean salary paid to 1000 workers of a factory was found to be Rs. 180.4. Later on it was discovered that the wages of two workers were wrongly taken as 297 and 165 instead of 197 and 185. Find the correct mean.

8. Find out mean of sales and expenses of the following 10 firms.

<table>
<thead>
<tr>
<th>Firms</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>50</td>
<td>50</td>
<td>55</td>
<td>60</td>
<td>65</td>
<td>65</td>
<td>65</td>
<td>60</td>
<td>60</td>
<td>50</td>
</tr>
</tbody>
</table>
### Expenses

| Expenses | 11 | 13 | 14 | 16 | 16 | 15 | 15 | 14 | 13 | 13 |

9. Calculate Median, Q1, Q3, P70, D8

<table>
<thead>
<tr>
<th>Marks</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
</tr>
</thead>
<tbody>
<tr>
<td>f</td>
<td>2</td>
<td>8</td>
<td>16</td>
<td>26</td>
<td>20</td>
<td>16</td>
<td>7</td>
<td>4</td>
</tr>
</tbody>
</table>

10. If A.M. is 28. Find (a) missing frequency (b) the median of the series.

<table>
<thead>
<tr>
<th>Profit</th>
<th>0-10</th>
<th>10-20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
<th>50-60</th>
</tr>
</thead>
<tbody>
<tr>
<td>f</td>
<td>12</td>
<td>18</td>
<td>27</td>
<td>?</td>
<td>17</td>
<td>6</td>
</tr>
</tbody>
</table>

11. Calculate mean, median and mode.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of firms</td>
<td>3</td>
<td>8</td>
<td>14</td>
<td>30</td>
<td>36</td>
<td>28</td>
<td>16</td>
<td>10</td>
<td>5</td>
</tr>
</tbody>
</table>

12. Calculate Median:

<table>
<thead>
<tr>
<th>Class Interval (below)</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
</tr>
</thead>
<tbody>
<tr>
<td>f</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>60</td>
<td>90</td>
<td>100</td>
<td>120</td>
</tr>
</tbody>
</table>

13. Calculate Mode:

<table>
<thead>
<tr>
<th>Class Interval (below)</th>
<th>10-19</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50-59</th>
<th>60-69</th>
<th>70-79</th>
</tr>
</thead>
<tbody>
<tr>
<td>f</td>
<td>8</td>
<td>6</td>
<td>20</td>
<td>50</td>
<td>20</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

14. Median = 23, N= 100. Find Missing Frequency:

<table>
<thead>
<tr>
<th>Marks</th>
<th>0-10</th>
<th>10-20</th>
<th>20-30</th>
<th>30-40</th>
<th>40-50</th>
</tr>
</thead>
<tbody>
<tr>
<td>f</td>
<td>8</td>
<td>30</td>
<td>?</td>
<td>12</td>
<td>10</td>
</tr>
</tbody>
</table>
1. Name the element which is required for keeping two sub-units of ribosomes together.

2. Define Coenocyte, Syncytium.

3. Name the non-living components of a cell.

4. What are plasmids? Describe their significance.

5. Write a short note on plastids. Are different types of plastids interchangeable? If yes, give examples.

6. Draw well labelled diagram of organelles which are semiautonomous and also give reason. Why are they called so?

7. Match the items of List I and List II.

<table>
<thead>
<tr>
<th>I</th>
<th>II</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Microbodies</td>
<td>contain digestive enzymes</td>
</tr>
<tr>
<td>2. Air Vacuoles</td>
<td>store &amp; concentrate mineral salts and nutrients.</td>
</tr>
<tr>
<td>3. Food vacuoles</td>
<td>osmoregulation</td>
</tr>
<tr>
<td>4. Contractile vacuoles</td>
<td>enzyme for Peroxide Metabolism</td>
</tr>
<tr>
<td>5. Sap vacuole</td>
<td>store metabolic gases.</td>
</tr>
</tbody>
</table>

8. What are different types of Chromosomes on the basis of position of Centromere.
9. With the help of well labelled diagrams enumerate the differences between flagella and centrosome.

10. Write a short note on fluid mosaic model of plasma membrane.

11. With the help of well labelled diagram explain Prophase I of meiosis I.

12. Comment on the statement “Interphase is the resting stage.”

13. How many ends would a glycogen molecule have?

14. Show how a glycosidic, peptide and a phosphor-diester bond is formed.

15. (a) Name the substance which is commonly called “Animal Starch.”
    (b) Where is it stored?
    (c) What are its constituents?
    (d) How are they linked?

16. What is the difference between nucleotide and nucleoside? Give two examples of each.

17. Explain the mode of action of enzymes.

18. Which part of the human body should one use to demonstrate stages in mitosis?

19. State the role of Centrioles other than spindle formation.

20. Define chiasma, crossing over, homologus chromosomes, synapsis, Bivalent, Tetrad.

21. What are reducing sugars and why are they called so?

22. Write a short note on classification of enzymes.
Q :-1  Find the number of non zero integral solutions of the equation
|1-i|^x=2^x.

Q :-2 Find the value of \( i^n+i^{n+1}+i^{n+2}+i^n+3, n \in \mathbb{N} \).

Q :-3 Express in a+ib form of
\[
\left(\frac{1}{3} + i \frac{7}{3}\right) + \left(4 + i \frac{1}{3}\right) - \left(-\frac{4}{3} + i\right)
\]

Q :-4 Find the value of \( x \) which satisfy the equation.
\[
a^2x^2 - 2a^3x + a^4 + a^4 + c^2 = 0
\]

Q:-5 Solve -12x>30 when x is an integer.

Q:-6 Find sum of odd integers from 1 to 2001.

Q:-7 Find the 20th term of \( \frac{5}{2}, \frac{5}{4}, \frac{5}{8}, \ldots \).

Q:-8 Evaluate : \( \sum_{k=1}^{11} (2 + 3^k) \)

Q:9 find sum to infinity in
\[
-\frac{3}{4}, \frac{3}{16}, -\frac{3}{64}, \ldots
\]

Q10. If \( P(n) \) is the statement “\( n^3+n \) is divisible by 3”. Is \( P(4) \) is true?

Q11. If \( \alpha \) and \( \beta \) are different complex Numbers with \( |\beta| = 1 \) then find \( \frac{\beta-\alpha}{1-\alpha \beta} \)

Q 12. If \( (a+ib) (c + id) (e +if) (g + ih) = A +iB \) then show that
\[
(a^2+b^2) (c^2+d^2) (e^2+f^2) (g^2+h^2) = A^2+B^2
\]
Q13. Reduce \( \left( \frac{1}{1-4i} - \frac{2}{1+i} \right) \left( \frac{3-4i}{5+i} \right) \) to the standard form.

Q14. Solve \( x^2 + \left( \frac{ax}{x+a} \right)^2 = 3a^2, x \neq -a \)

Q15. Solve \( \frac{1}{p+q+x} = \frac{1}{p} + \frac{1}{q} + \frac{1}{x} \)

Q16. Solve the following system of inequations:

\[
\frac{x}{2x+1} \geq \frac{1}{4}, \quad \frac{6x}{4x-1} < \frac{1}{2}
\]

Q17. Solve the following system of inequalities:

\[
\frac{4x+3}{2x-5} < 6, \quad x \neq \frac{5}{2}
\]

Q18. Solve: \( \frac{|x|-1}{|x|-2} \geq 0, \quad x \in \mathbb{R}, \quad x \neq \pm 2 \)

Q19. Find the solution set of the following system of linear inequations graphically:

\[
\begin{align*}
2x + 3y - 12 &\geq 0 \\
2x - y + 2 &\geq 0 \\
3x - 4y + 12 &\geq 0 \\
x &\leq 4, \quad y \geq 2
\end{align*}
\]

Q20. Using P.M.I, prove that for all \( n \in \mathbb{N} \).

\[
1 + \frac{1}{1+2} + \frac{1}{1+2+3} + \ldots + \frac{1}{1+2+3+\ldots+n} = \frac{2n}{n+1}
\]
Q21. Using P.M.I prove that

\[ 7^{2n} + 2^{3n-3} \cdot 3^{n-1} \]

is divisible by 25 for all \( n \in \mathbb{N} \).

Q22. The ratio of the A.M and G.M between two positive number \( a \) and \( b \) is \( m:n \) show that

\[ a:b = (m + \sqrt{m^2 - n^2}) : (m - \sqrt{m^2 - n^2}) \]

Q23. If \( a, b, c \) are in A.P. \( b, c, d \) are in G.P. and \( \frac{1}{c}, \frac{1}{d}, \frac{1}{e} \) are in A.P. prove that \( a, c, e \) are in G.P.

Q24. Find the sum of the series up to \( n \) terms.

\[ \frac{1^3}{1} + \frac{1^3 + 2^3}{1+3} + \frac{1^3 + 2^3 + 3^3}{1+3+5} + \ldots \]

Q25. Let \( S \) be sum, \( P \) be product and \( R \) the sum of the reciprocals of \( n \) terms in a G.P. prove that \( P^2 R^n = S^n \)
Q.1 Describe Integrated Physical Education. Write the Principle of Integrated Physical Education.

Q.2 Name Some Important Sports awards. Explain any three of them?

Q.3 Elucidate the origin of Ancient Olympic Games with its rules & regulations.

Q.4 What is All India Council of Sports? What are its functions and achievements?

Q.5 Explain organizational set up of CBSC In detail.

Q.6 How can life threatening diseases be prevented through lifestyle change? Discuss in details.

Q.7 Write an article on health indicators discussing its types.

Q.8 Write any two importance of Physical fitness and wellness.

Q.9 Elaborate NIS with its aims and functions.

Q.10 Describe ‘Chacha Nehru Sports Awards’.
Que :- 1  Write an essay on Indus Valley Civilization Art.

Que :- 2  Answer the following

1  Six limbs of Art

2  Five principles of Art

Que :- 3  Write an essay on 'Wizard's Dance ' of BhimBethaka ?

Que :- 4  what is colour? How many type of colour are there?

Que :- 5  What is art? Give five definitions of Art?

Que :- 6  Write an essay on Pre-historic Rock painting in 200 words.

Que :- 7  Write a short note on the compositional arrangement of 'Dancing Girl of Mohanjodaro.

Que :- 8  How far the Artist been successful on depicting the subject matter of the following

Art work of Indus Valley Civilization.

1  Mother Goddess

2  Bull Seal
1. State law of multiple proportion. Explain it with the help of example.

2. 0.7 g Fe combines with 0.4 g of S to form FeS. 2.8 g of Fe dissolved in HCl precipitates out 4.4 g FeS on treatment with Na₂S. Prove that it obeys law of constant proportion.

3. Calculate the total number of electrons in 1.6 g of methane.

4. From 200 mg of CO₂, 10²¹ molecules are removed. How many mg and moles of CO₂ are left?

5. The %age composition of F.A.S is 14.32% Fe²⁺, 9.20% NH₄⁺, 49.0% SO₄²⁻ and 27.57% H₂O. What is the empirical formula of the compound? [F.A.S is ferrous ammonium sulphate]

6. 2.0 g of Mg is burnt in 1.0 g of O₂. Which is the limiting reagent? What is the amount of MgO formed?

7. The density of 3M solution of NaCl is 1.25 g/ml. Calculate molality of solution.

8. What information regarding quantum nos. is given by 3d⁷?

9. The ionization energy of H atom is 13.6 eV. What will be the ionization energy of He⁺ and Li²⁺?

10. Calculate the momentum of a particle which has a de Broglie’s wavelength of 10⁻¹⁰ m.

11. The uncertainty in position and velocity of a particle are 10⁻¹⁰ m and 5.27 X 10⁻²⁴ m/s respectively. Calculate the mass of the particle?
12. State Pauli’s exclusion principle?

13. Write the following orbitals in increasing order of energy:

1S, 2S, 2P, 3S, 3d, 4S, 4P, 4f, 4cl, 4f

14. Give the quantum no. of the last electron of element atomic number 17.

15. What is the ratio between the energy of two radiations of one with a wavelength of 6000Å and the other with 2000Å.

16. Explain why cations are small and anions are larger on ratio than their parent atom?

17. What would be IUPAC names and symbols for elements with atomic no. 150.

18. Arrange the following ions in order of decreasing ionic ratio: li²⁺, He⁺, Be³⁺.

19. Give four examples of species which are isoelectronic with Ca²⁺.

20. Why are electron gain enthalpies of Be and Mg positive.

21. Explain why chlorine can be converted into chloride ion more easily as compared to fluoride ion from fluorine.

22. Write the general E.C Of S, P, d, and f block elements?

23. Why chlorine has highest electron gain enthalpy although fluorine is most electronegative element?

24. Electron gain enthalpy of noble gases is positive. Explain?

25. Though Cu, Ag and Au atoms have completely filled sets of d orbitals yet they are called transition metals. Why?