



SAVITRI DEVI DAV PUBLIC SCHOOL, JAMTARA

SUMMER VACATION ASSIGNMENT- (2023-24)

CLASS: XI SCIENCE

SUBJECT: ENGLISH

Assignment 1.

- Prepare a travel plan to visit a new place of interest during the upcoming Summer Break. Narrate your experiences of stay at the new place, its special attractions and your interactions with the people living there. Also mention about the weather conditions of the place, its height from the sea level, air temperature including other geographical features of the place. Paste images/ photos of the place/ people as marks of evidences.

Assignment 2.

Prepare a Tense Chart showing Tense and its structures. Give examples of each structure with negative and interrogative sentence patterns.

Assignment 3.

Fill in the blanks applying appropriate tense to the verbs in brackets :

Water ____ (freeze) at 0 degree celsius.

- My father ____ (write) an English article at the moment.
- All the boarders ____ (sleep) already.
- Someone ____ (wait) for you on the corridor since morning.
- He ____ (sell) his car last week.
- It ____ (rain) when I returned home yesterday.
- By the time they reached the station, the train ____ (leave).
- The traffic dept. ____ (launch) new traffic guidelines next week.
- The Education Dept. ____ (implement) NEP in the country by 2025.

Assignment 4.

Collect at least 10 English newspaper clippings displaying classified advertisements of different orders and paste them in your assignment copies.

Assignment 5.

Design at least 5 inspirational posters on Environmental Issues to drive people's attention on the issues.

Assignment 6.

Reflect on the importance of relationship with kinships & its utility in life on the basis of your reading the ch. The portrait of a lady. Also comment upon how the nuclear family fibre of the present times has shattered this value making life today dry and void.

Assignment 7.

Take a comparative study of the cultural and other diversities of your state Jharkhand and Telengana. Mention their variations of food habits, costumes, crop harvests, climatic conditions, cultural traditions etc. that enrich the versatility of the nation at large.

Assignment 8.

Conduct spl. interactions with some people of your neighborhood on the importance of children learning English at school level. Also collect their opinions about your school.

SUBJECT:PHYSICS

- 1 If $x = at + bt^2$, where x is in metre and t in hour, what will be the unit of ' a ' and ' b ' ?

- 2 Fill in the blanks :
 - (i) Light year is the unit of.....
 - (ii) S.I. unit of angle is.....
 - (iii) The standard atmospheric pressure equals.....dyne/cm².
 - (iv) Hertz is the unit of.....
 - (v) Watt second is the unit of.....

- 3 Write the dimensions of
 - (i) Linear density
 - (ii) Power
 - (iii) Impulse
 - (iv) Velocity gradient
 - (v) Mass per unit area
 - (vi) Kinetic energy
 - (vii) Angular acceleration
 - (viii) Couple
 - (ix) Moment of force
 - (x) Work done

- 4 Name the physical quantity of the dimension given below :
 - (i) ML^0T^{-3}
 - (ii) $ML^{-1}T^{-1}$
 - (iii) $M^{-1}L^3T^{-2}$
 - (iv) ML^2T^{-3}
 - (v) ML^0T^{-2}
 - (vi) T^{-1}

- 5 State the principle of homogeneity of dimensions. Test the dimensional homogeneity of the following equation :

$$h = h_0 + v_0 t + \frac{1}{2} g t^2.$$

- 6 Assuming that the mass (m) of the largest stone that can be moved by a flowing river depends only upon the velocity v , the density ρ of water and the acceleration due to gravity g . Show that m varies, with the sixth power of the velocity of the flow.
- 7 The time of oscillation (t) of a small drop of liquid under surface tension depends upon the density ρ , radius r and surface tension (σ).

Prove dimensionally that, $t \propto \sqrt{\frac{\rho r^3}{\sigma}}.$

- 8 The factors affecting the time period of a simple pendulum are mass, length and the acceleration due to gravity. Deduce a relation for the time period of a simple pendulum.
- 9 The force experienced by a mass moving with a uniform speed v in a circular path of radius r experiences a force which depends on its mass, speed and radius. Prove that the relation is

$$f = \frac{mv^2}{r}.$$

- 10 The length and breadth of a metal sheet are 3.124 m and 3.002 m respectively. The area of this sheet up to four correct significant figures is:

- (a) 9.37 m²
- (b) 9.378 m²
- (c) 9.3782 m²
- (d) 9.378248 m²

11. Draw the labelled diagram of screw gauge and write the description of it on chart paper.

Note:- The homework assignment must be submitted in new copy.

SUBJECT: CHEMISTRY

1. Calculate the mass percent of calcium, phosphorus and oxygen in calcium phosphate $\text{Ca}_3(\text{PO}_4)_2$.
2. If two elements can combine to form more than one compound, the masses of one element that combine with a fixed mass of the other element, are in a whole-number ratio.
 - a. Is this statement true?
 - b. If yes, state according to which law?
 - c. Give one example related to this law.

3. In the following questions a statement of Assertion (A) followed by a statement of Reason (R) is given.

Choose the correct option out of the choices given below each question.

- (i) Both A and R are true and R is the correct explanation of A.
- (ii) A is true but R is false.
- (iii) A is false but R is true.
- (iv) Both A and R are false.

a. Assertion (A): The empirical mass of ethene is half of its molecular mass.

Reason (R): The empirical formula represents the simplest whole-number ratio of various atoms present in a compound.

b. Assertion (A): One atomic mass unit is defined as one-twelfth of the mass of one carbon-12 atom.

Reason (R): Carbon-12 isotope is the most abundant isotope of carbon and has been chosen as the standard.

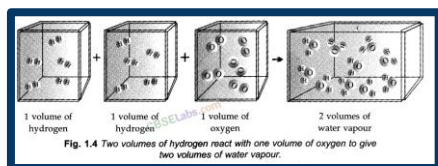
c. Assertion (A): Significant figures for 0.200 are 3 whereas for 200 it is 1.

Reason (R): Zero at the end or right of a number is significant provided they are not on the right side of the decimal point.

4. The number of atoms present in one mole of an element is equal to Avogadro number. Which of the following elements contains the greatest number of atoms?

- (a) 4g He (b) 46g Na (c) 0.40 g Ca (d) 12 g He.

5. Which law is described in the following figure .



State the law .

6. In three moles of ethane (C_2H_6), calculate the following:

- (i) Number of moles of carbon atoms.
- (ii) Number of moles of hydrogen atom
- (iii) Number of molecules of ethane

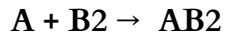
7. Express the following in the scientific notation:

- (i) 0.0048 (ii) 234,000 (iii) 8008 (iv) 500.0 (v) 6.0012

8. How many significant figures are present in the following?

- (a) 0.0025 (b) 208 (c) 5005 (d) 126,000 (e) 500.0 (f) 2.0034

9. In a reaction



Identify the limiting reagent, if any, in the following reaction mixtures.

- (i) 300 atoms of A + 200 molecules of B (ii) 2 mol A + 3 mol B
(iii) 100 atoms of A + 100 molecules of B (iv) 5 mol A + 2.5 mol B
(v) 2.5 mol A + 5 mol B

10. Convert the following into basic units:

- (i) 28.7 pm (ii) 15.15 pm (iii) 25365 mg

SUBJECT: MATHEMATICS

(Complex Number)

1. Prove that: (i) $i^{104} + i^{109} + i^{114} + i^{119} = 0$ (ii) $(1+i)^4 \left(1+\frac{1}{i}\right)^4 = 16$

(iii) $6i^{54} + 5i^{37} - 2i^{11} + 6i^{68} = 7i$ (iv) $\frac{1}{i} - \frac{1}{i^2} + \frac{1}{i^3} - \frac{1}{i^4} = 0$

2. Express the following in the form of $x+iy$:

(i) $\frac{(2+3i)^2}{1+i}$ (ii) $\frac{(1-i)^3}{1-i^3}$ (iii) $\frac{3-i}{2+i} + \frac{3+i}{2-i}$ (iv) $\frac{3+2i}{2-3i} + \frac{3-2i}{2+3i}$
(v) $\frac{3}{1+i} - \frac{2}{2-i} + \frac{2}{1-i}$ (vi) $(-1+\sqrt{3}i)^{-1}$ (vii) $\frac{5+\sqrt{2}i}{1-\sqrt{2}i}$ (viii) $\left(\frac{1}{1-2i} + \frac{3}{1+i}\right)\left(\frac{3+4i}{2-4i}\right)$

3. Find the multiplicative inverse of the following:

(i) $\frac{2+3i}{3-2i}$ (ii) $(2-5i)^2$ (iii) $(6+5i)^2$ (iv) $\frac{(i+1)(i+2)}{(i-1)(i-2)}$

4. Show that $\frac{\sqrt{7}+i\sqrt{3}}{\sqrt{7}-i\sqrt{3}} + \frac{\sqrt{7}-i\sqrt{3}}{\sqrt{7}+i\sqrt{3}}$ is real.

5. Show that: $\frac{(1+i)(3+i)}{(3-i)} - \frac{(1-i)(3-i)}{(3+i)} = \frac{14}{5}i$

6. Evaluate: $\sqrt{4+3\sqrt{-20}} + \sqrt{4-3\sqrt{-20}}$
7. Find the value of $x^3 + 7x^2 - x + 16$, when $x = 1 + 2i$.
8. Express the following complex numbers in the standard form $a + ib$:
- $(1 + i)(1 + 2i)$
 - $(3 + 2i) / (-2 + i)$
 - $1/(2 + i)^2$
 - $(1 - i) / (1 + i)$
 - $(2 + i)^3 / (2 + 3i)$
 - $[(1 + i)(1 + \sqrt{3}i)] / (1 - i)$
 - $(2 + 3i) / (4 + 5i)$
 - $(1 - i)^3 / (1 - i^3)$
 - $(1 + 2i)^{-3}$
 - $(3 - 4i) / [(4 - 2i)(1 + i)]$
 - $\left(\frac{1}{1 - 4i} - \frac{2}{1 + i} \right) \left(\frac{3 - 4i}{5 + i} \right)$
 - $(5 + \sqrt{2}i) / (1 - \sqrt{2}i)$

(Straight Lines)

- Find the equations of the lines parallel to axes and passing through $(-2, 3)$.
- Find the slope of the line, which makes an angle of 30° with the positive direction of y-axis measured anticlockwise.
- Find the equation of the line whose perpendicular distance from the origin is 4 units and the angle which the normal makes with positive direction of x-axis is 15° .
- Point R (h, k) divides a line segment between the axes in the ratio 1: 2. Find equation of the line.
- Find the equations of the lines, which cut-off intercepts on the axes whose sum and product are 1 and -6 , respectively.
- Find the equation of the line parallel to y-axis and drawn through the point of intersection of the lines $x - 7y + 5 = 0$ and $3x + y = 0$.
- Find the value of p so that the three lines $3x + y - 2 = 0$, $px + 2y - 3 = 0$ and $2x - y - 3 = 0$ may intersect at one point.
- If p and q are the lengths of perpendiculars from the origin to the lines $x \cos \theta - y \sin \theta = k \cos 2\theta$ and $x \sec \theta + y \operatorname{cosec} \theta = k$, respectively, prove that $p^2 + 4q^2 = k^2$.

SUBJECT: BIOLOGY

1. Define a taxon. What is meant by taxonomic hierarchy? Give a flow diagram from the lowest to highest category for a plant and an animal. What happens to the number of individuals and number of shared characters as we go up the taxonomic hierarchy?

2. Interbreeding cannot be taken as a criterion to delimit species. Justify this with an example. Brinjal and potato belong to the same genus but different species. What separates the two species?
3. Discuss in detail the binomial nomenclature of living organisms given by Carolus Linnaeus.
4. Give reason for the following.
 - (I) Polluted water bodies usually have a high abundance of plants like Nostoc and Oscillatoria.
 - (II) The members of class deuteromycetes are considered as imperfect fungi.
 - (III) Archaeobacteria can tolerate extremes of temperature and pH.
5. (I) Why are diatoms called as pearls of the ocean? What is diatomaceous earth?
 - (II) Viruses are non motile. How do they spread?
 - (III) Why is Lichen play an important role in biological succession and soil formation?
 - (IV) Cellular slime moulds are described as communal slime moulds. Justify.
6. Make an outline of five kingdom classification. Write merits and demerits of five kingdom classification.
7. What are taxonomical aids? Give the importance of herbaria and museums. How are Botanical Gardens and Zoological parks useful in conserving biodiversity?
8. (I) How are “fairy rings” formed on the forest floor after heavy rains?
 - (II) How do fungi forms partnership with most plants?
 - (III) Why is Euglena called taxonomic puzzle?
9. In which organisms these structures are found and what is their role?
 - (I) Paramylon (II) Plasmodium
 - (III) Ascospore (IV) Amoeboid cell

10. CASE BASED

A student observed polluted water bodies. He found green gelatinous organisms which spread all over the water. He studied some of these organisms under a microscope and discussed them with his teacher.

- (I) What are these green gelatinous organisms?
- (II) What are heterocysts?
- (III) Write any two features of the cyanobacteria.
- (IV) Write any one similarity between cyanobacteria and plants.
- (V) What is the other name of cyanobacteria?

9. Find the image of the point (3, 8) with respect to the line $x + 3y = 7$ assuming the line to be a plane mirror.

10. A line is such that its segment between the lines $5x - y + 4 = 0$ and $3x + 4y - 4 = 0$ is bisected at the point (1, 5). Obtain its equation.

SUBJECT: INFORMATICS PRACTICES

1. Define each of the following:
2. (a) byte (b) kilobyte (c) megabyte (d) gigabyte (e) terabyte
3. Explain the IPO process with the help of diagram.
4. What is the application software ? Why is it required?
5. What do you understand by input unit? What is its significance? What does computer system consist of?
6. What are RAM and ROM? How are they alike? How are they different? What are PROM, EPROM, EEPROM?
7. What is the importance of an OS?
8. Write the differences between Impact Printer and Non-impact Printer.
9. What are various categories of software?
10. What is the meaning of the term volatile Primary Memory?
11. What are major functional components of a mobile system?
12. Briefly explain the basic architecture of a computer.
13. Draw a block diagram depicting organization of a mobile system.

SUBJECT: PHYSICAL EDUCATION

1. Rohan, a student of class XI has taken up physical education as he is very interested in making his career in the field of Physical Education. When he was introduced to the career options available in the subject he became a bit hesitant about continuing in this field because for him physical education was just about playing so he approached his subject teacher to explain his position. On the basis of the given information given below are a few queries of Rohan and you have to give him the reply according to the information provided to you in your first chapter.

- (A.) A child interested in reporting the sports event should further study _____.
- (B.) For making a future in Officiating a person should do _____ course.
- (C.) Teaching physical education to primary students requires _____ as qualification.
- (D.) Designing and researching sports equipment is related to _____.
- (E.) Sports journalism involves _____.

2. Complete the following about Khelo India given below.

- A. Launched in-
- B. Launched by-
- C. Vision of programme
- D. Mission of programme
- E. Aims and Objectives of programme

3. Write the rules and regulations of any one game of your choice out of the following and also draw its ground dimensions. (Volleyball, basketball, kabaddi, football, badminton, handball, etc.)