DAV PUBLIC SCHOOL, GANDHI NAGAR (CCL), RANCHI
(HOLIDAY HOME WORK)
CLASS: XI
Session: 2026-27

SUBJECT:CHEMISTRY

Q1. Convert into mole
(i) 1g of sugar
(ii) 11.2L of oxygen at STP
(iii) 53g of Sodium Carbonate
(iv) 3.011×10^{15} particles of Calcium Carbonate
(v) 1 atom of sodium

Q2. Calculate number of atoms of the following
(i) 0.01 mole of ammonia
(ii) 20g of Calcium Carbonate
(iii) 3.42g of sugar
(iv) 16g of methane
(v) 6.35g of Copper

Q3. Calculate the number of gram atoms of the following
(i) 1.6g of methane
(ii) 2.5g of oxygen gas
(iii) 0.1 mole of calcium carbonate
(iv) 1g of carbon
(v) 20g of calcium

Q4. Calculate the number of electrons present in the following
(i) 1.8g of water
(ii) 0.001 moles of methane
(iii) 6.022×10^{11} atoms of sodium
(iv) 1.505×10^{20} molecules of calcium hydroxide
(v) 3.9g of potassium

Q5. Calculate the number of ions present in the following
(i) 0.74g of calcium hydroxide
(ii) 0.051g of aluminium oxide
(iii) 1.875g of copper nitrate
(iv) 0.01 mole of aluminum phosphate
(v) 3.011×10^{19} molecules of sodium bicarbonate

Q6. 40ml of 0.5N HCl, 60ml of 0.5N H_2SO_4 and 100ml of 0.2N HNO_3 are mixed together. What is the normality of resultant solution?

Q7. H_2SO_4 contains 98% H_2SO_4 by mass. Calculate the molarity of this solution with density 1.84g/cm^3

Q8. Calculate the molality and mole fraction of a solution containing 2.5g of ethanoic acid in 75g of benzene. Also, calculate the mass percentage of benzene in the solution.

Q9. The given sample of aqueous solution of H_2SO_4 was found to have a mole fraction of H_2SO_4 as 0.15. Calculate the molality of the solution.

● Solve all the questions related to molality, molarity, mole fraction from NCERT exercise (chapter 1)

SUBJECT: ENGLISH
ASSIGNMENT :

Read any one English Newspaper daily and cut out the classified ads (2 each) from it and paste it in your English notebook.

- For Sale
- Situation Wanted
- Lost and Found
- Situation Vacant
- Tour and Travels
- Matrimonial

PROJECT WORK :
Interview-based Research
(Connecting to ' The Portrait of a Lady')
The Task: Interview an elderly person (neighbour ,relative) about their childhood, traditional games they played or stories from their grandparents.
Actionable Output: Record the conversation, create a 1000 word written report/essay or create a video blog of the interview.
Reflection: Write a paragraph on the lessons learned about the generation gap or the value of companionship.
PROJECT LAYOUT :
Complete the project taking ideas from the guidelines given below.It has to be made on A4 sized sheets and to be enclosed in a file.
Sheet 1: Cover page with title, school details, details of student.
Sheet 2: Statement of purpose/objective.
Sheet 3: Certificate of Completion.
Sheet 4: Action plan (3-4 lines about the project)
: Research Tools and Methodology
: Supporting Materials
Sheet 5: Introduction of the project
Sheet 6: Body of the Project
: Supporting Material
: Questionnaire
: Interview
Sheet 7: Report- 800-1000 words essay/report.
Sheet 8: Write a paragraph (100-150) words about the experience and learning outcomes.
Sheet 9: Photographs
Sheet 10: List resources/Bibliography

SUBJECT: Computer Science

1. Write a note on the following number systems:-

a. Decimal b. Octal c. Binary d. Hexadecimal

2. Convert the following numbers from Decimal to Binary:-

a. 26 b. 55 c. 76 d. 28

3. Convert the following numbers from Binary to Decimal:-

b. 11011 b. 10111 c. 101010 d. 001111

4. Convert the following numbers from Binary to octal:-

a. 111011 b. 101011 c. 1001011 d. 1001111

5. Convert the following numbers into its 1's complement and 2's complement form:-

a. 111011 b. 101011 c. 0001011 d. 1001111

6. Convert the following numbers from octal to Binary:-

a. 75 b. 25 c. 15 d. 36

7. Convert the following numbers from Binary to Hexadecimal:-

a. 1101011 b. 1101011 c. 10001011 d. 10101111

8. Convert the following numbers from Hexadecimal to Binary:-

a. DEAF b. FACE

9. Do as Directed:

a. 1000111 + 1111001 b. 11110011 – 00110011

SUBJECT : MATHEMATICS

1. 42°57'16" is equal to :
   a) 7π/2 b) 3/4 c) π/6 d) 2
2. cosec(-1410°) is :
   a) -2 b) √2 c) 1/√2 d) 2
3. The value of cos1°.cos2°.cos3°.cos4°……cos179°:
   a) 0 b) 1 c) -1 d) 1/√2
4. If sinθ+cosθ=√3 cosθ, then the value of 2cosθ-sinθ?
   a) √3sinθ b) -√2 sinθ c) √3cosθ d) -√3 cosθ
5. Assertion: $tan3A = \frac{3tanA - tan^3A}{1-3tan^2A}$
   Reason: $tan3(A+B+C) = \frac{tanA+tanB+tanC-tanAtanBt}{1-tanAtanB-tanBtanC-tanCta}$.
   a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
   b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
   c) Assertion (A) is true but reason (R) is false.
   d) Assertion (A) is false but reason (R) is true.

6. If $\sin x = \cos^2 x$, what is the value of $\cos^8 x+2\cos^6 x+\cos^4 x$?
7. If $\cos\theta = (-½)$ and $\pi<\theta<3\pi/2$, find the value of $4\tan^2\theta-3\operatorname{cosec}^2\theta$.
8. Prove that : $\frac{cos4x+cos3x+cos}{sin4x+sin3x+si} = \cot 3x$
9. If A+B=45°.Show that (1+tanA)(1+tanB)=2
10. If $cos\alpha + cos\beta = \frac{1}{3}$ and $sin\alpha + sin\beta = \frac{1}{4}$, Prove that $cos\frac{\alpha-\beta}{2} = \pm\frac{5}{24}$
11. If α and β are the solution of equation $asec\theta + btan\theta = c$, then show that $tan(\alpha+\beta) = \frac{2b}{b^2-c^2}$
12. Nitish is playing with a Pinwheel toy which he bought from a village fair. He noticed that the pinwheel toy revolves as fast as he blows it. Consider the Pinwheel toy that makes 360 revolutions per minute.

Based on the above information answer the following questions:

i) Find the number of revolutions made by pinwheel toy in 120 seconds

ii) Find the angle made by pinwheel toy (in degree) in 6 revolutions

iii) Find the radius of the circle in which a central angle of 60° intercept an arc of length 37.4 cm.

iv) Find the angle made by pinwheel toy (in radian) in 12 revolutions

SUBJECT: PHYSICS

1. The air bubble formed by explosion inside water perform oscillations with time period T which depends on pressure (p), density (ρ) and on energy due to explosion (E). Establish relation between T, p, E and ρ.
2. The velocity v of a particle depends upon the time 't' according to the equation

$$v = \sqrt{ab} + bt + \frac{c}{d+t}$$

Determine the units of a, b, c and d. What physical quantities they represent. All have SI units.

3. Each of the following equations was given by a student during an examination.

$$\frac{1}{2}mv^2 = \frac{1}{2}mv_0^2 + \sqrt{mgh}$$

$$v = v_0 + at^2$$

$$ma = v^2$$

Do the dimensional analysis of each equation and explain why the equations cannot be correct.

4. Suppose that the displacement of an object is related to time according to the expression $x=Bt^2$. What are the dimensions of B?
5. Suppose we are told that the acceleration *'a'* of a particle moving with uniform

speed *'v'* in a circle of radius *'r'* is proportional to some power of *r*, say r^n, and some power of v^m. How can we determine the value of *n* and *m*.
5. The period *'T'* of a simple pendulum is measured in time units and is described by T=2π√l/gWhere *l* is the length of the pendulum and 'g' is the free fall acceleration in units of length divided by square of time. Show that this equation is dimensionally correct.
6. In the following *x* is in meters, *t* in seconds, *v* in m/s and *a* is in m/s^2. Find the SI unit of each combination.
a. $\frac{v2}{xa}$
b.
c. $\frac{1}{2}$ at^2
7.Learn dimensional formulae of the physical quantities from the table given in the NCERT Physics book-1.
8. Learn formulae of differentiation and integration.

Biology

To be done in Class work copy.
Competency based Questions
Assertion Reason
For the following questions:
A.If both assertion and reason are true and reason is correct explanation of assertion.
B.If A and R are true but R is not the explanation of A.
C.If A is true but R is false
D.If A is false and R is true
E.If both are incorrect.
Q1.Assertion– Phylogenetic and Natural classification are similar.
Reason–Organisms related evolutionarily are usually morphologically also similar.
Q2.Assertion– Hierarchical system is useful in that it reduces the volume of description in a catalogue of animals and plants.
Reason– Characters given for a larger category need not be repeated for similar categories.
Q3. Assertion- There are only seven obligate categories in taxonomy.
Reason- Others are called intermediate categories.
Q4.Assertion– There is no difference between taxon and category.
Reason- Aves is a taxon that includes the category birds.
Q5. Assertion–Phycomycetes are generally called algal fungi.
Reason– It is believed that they have evolved from algae.
Q6. Assertion- Viruses are readily killed by antibiotics.
Reason– Antibiotics are the antigens secreted by the host.
Q7.Assertion- A virus attacking a bacterium is called bacteriophage.
Reason– A virus attacking a blue green algae is called cyanophage.
Q8. Assertion -Gram negative bacteria do not retain the stain when washed with alcohol.
Reason– Gram negative bacteria is covered by an extra lipopolysaccharide layer.

Q9.Assertion–There is no transmission of malaria if a male anopheles mosquito bites humans.
Reason- It does not carry a virulent strain of plasmodium.
QAnswer the following Questions
10.Write any two reasons why Neurospora is used as laboratory material.
11. What are pearls of the ocean ,why are they called so?
12. Classify bacteria on the basis of mode of nutrition.
13.What are the similarities between autotrophic cyanobacteria and heterotrophic bacteria?
14.What are the merits of Five kingdom classification?
15.Write scientific names of five animals and plants.

Subject: FINE ART

Portfolio designing(16 art work)

8pencil sketching and 8 water colour

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