

TATA DAV PUBLIC SCHOOL, NOAMUNDI
CLASS: XI SCIENCE
SUMMER HOLIDAYS HOME WORK

ENGLISH :-

1. Relating the topic 'Portrait of a Lady' the reader's real life experiences. Write about a person one who holds dear.
2. Prepare a presentation on the works and achievements of Khushwant Singh. (pictorial as well as factual)
3. Prepare a working model on 'Environment Protection.'

PHYSICS :-

1. When a planet X is at a distance of 824.7 million kilometres from earth its angular diameter is measured to be 35.72 " of arc. Calculate the diameter of planet X.
2. Explain This Common Observation Clearly: If You Look Out of the Window of a Fast-Moving Train, the Nearby Trees, Houses Etc. Seem to Move Rapidly in a Direction Opposite to the Train's Motion, but the Distant Objects (hill Tops, the Moon, the Stars Etc.) Seem to Be Stationary. (in Fact, Since You Are Aware That You Are Moving, These Distant Objects Seem to Move With You).
3. The sum of the numbers 436.32, 227.2 and 0.301 inappropriate significant figures is (a) 663.821 (b) 664 (c) 663.8 (d) 663.82
4. (a) The volume of a cube of side 1 cm is equal tom³
 (b) The surface area of a solid cylinder of radius 2.0 cm and height 10.0 cm is equal to...(mm)²
 (c) A vehicle moving with a speed of 18 km h⁻¹ covers....m in 1 s
 (d) The relative density of lead is 11.3. Its density isg cm⁻³ orkg m⁻³.
5. A calorie is a unit of heat (energy in transit), which equals about 4.2 J, where 1J =1 kg m²s⁻². Suppose we employ a system of units in which the unit of mass equals α kg, the unit of length equals β m, and the unit of time is γ s. Show that a calorie has a magnitude of $4.2 \alpha^{-1} \beta^{-2} \gamma^2$ in terms of the new units.
6. A new unit of length is chosen such that the speed of light in a vacuum is unity. What is the distance between the Sun and the Earth in terms of the new unit if light takes 8 min and 20 s to cover this distance?
7. student measures the thickness of a human hair by looking at it through a microscope of magnification 100. He makes 20 observations and finds that the average width of the hair in the field of view of the microscope is 3.5 mm. What is the estimate on the thickness of the hair?

CHEMISTRY :-

1. What is the difference between molality and molarity?
2. Calculate the mass percent of calcium, phosphorus and oxygen in calcium phosphate Ca₃(PO₄)₂
3. Calculate the average atomic mass of hydrogen using the following data:

Isotope	% Natural abundance	Molar mass
¹ H	99.985	1
² H	0.015	2

4. Calculate the volume of hydrogen gas liberated at STP when 32.65 g of zinc reacts with HCl. 1 mol of a gas occupies 22.7 L volume at STP; atomic mass of Zn = 65.3 u.
5. The density of the 3 molal solution of NaOH is 1.110 g mL⁻¹. Calculate the molarity of the solution.

6. If 4 g of NaOH dissolves in 36 g of H₂O, calculate the mole fraction of each component in the solution.
Also, determine the molarity of solution (specific gravity of solution is 1 g mL⁻¹)
7. In the reaction $2A + 4B \rightarrow 3C + 4D$, when 5 moles of A react with 6 moles of B, then
- Which is the limiting reagent?
 - Calculate the amount of C formed?
8. Calculate Molality, Molarity and Molefraction of NaCl if the density of 10% (mass/mass) aqueous NaCl is 1.20 g mL⁻¹.
9. Fill the blanks (i) 1 mm = _____ Km = _____ pm (ii) 1mL = _____ L = _____ g
(iii) 1 mg = _____ kg = _____ ng
10. Calculate the number of molecules present in 1.4g of N₂ molecules.

MATHEMATICS :-

- Evaluate i^{-39}
- Evaluate $(1+i)^4$
- Express in the form of $a + ib$, $(3i-7) + (7-4i) - (6+3i) + i^{23}$
- Solve for x and y, $3x + (2x-y)i = 6 - 3i$
- Find the value of $1+i^2 + i^4 + i^6 + i^8 + \dots + i^{20}$
1. If $U = \{1,2,3,4,5,6,7,8,9\}$, $B = \{2,4,6,8\}$ and $C = \{3,4,5,6\}$. Find: $(B - C)'$
- If $A = \{x : x \in R, x > 4\}$ and $B = \{x \in R : X < 5\}$. Find $A \cap B$.
- If $U = \{1,2,3,4,5,6,7,8,9\}$, $A = \{2,4,6,8\}$ and $B = \{2,3,5,7\}$. Verify $(A \cap B)' = A' \cup B'$.
- Find $\sqrt{7 - 24i}$
- Solve: $2x^2 + \sqrt{15}ix - i = 0$

BIOLOGY :-

- Give two differences between Monera and Protista
- Why are bryophytes called amphibians of the plant kingdom?
- Give two differences between gymnosperms and angiosperms
- A scientist discovers microorganisms living in hot springs and salty lakes. They survive without oxygen and have a unique cell wall.

Questions:

- Identify the group of organisms.
- Mention one special feature of their cell wall.
- Why are they important in evolution?

- A tall plant has vascular tissues, seeds, but no flowers or fruits. Seeds are exposed.

Questions:

- Identify the plant group.
- What are naked seeds?
- Give one example

- Prepare a 3D Model on following topics--

Virus- T4 Bacteriophage
Amoeba- Movement model
Bacteria

COMPUTER SCIENCE :-

1. Case Study Based Question

Python is one of the object oriented Languages. It works in window as well as DOS mode. It allows us to execute code in interactive as well as script mode. Interactive mode is also termed as Python IDLE.

Read the above information carefully and answer the following questions.

- a) Name an object oriented programming language other than python.
 - b) Python interactive mode is also called IDLE. What does IDLE mean?
 - c) Name an operating system on which Python code can be executed.
 - d) In which mode Python program files can be saved for future use?
2. Explain the features of python language.
 3. Differentiate b/w
 - (i) RAM and ROM
 - (ii) SRAM and DRAM
 - (iii) Compiler and Interpreter
 4. Write short notes on,
 - (i) Interpreter
 - (ii) OMR
 - (iii) EPROM
 - (iv) MICR
 5. Write full forms of :
 - (i) EEPROM
 - (ii) OMR
 - (iii) MICR
 - (iv) POST
 6. Convert the following number system:
 - (i) $(A1B)_{16} = (?)_2$
 - (ii) $(106)_{10} = (?)_{16}$
 - (iii) $(78)_{10} = (?)_8$
 - (iv) $((122)_{10} = (?)_2$
 - (v) $(13B)_{16} = (?)_{10}$
 - (vi) $(101101)_2 = (?)_{10}$
 - (vii) $(11011)_2 = (?)_8$

PHYSICAL EDUCATION :-

1. Project Work:

Prepare a short report (1–2 pages) on any one:

- Career as a Sports Coach
- Career as a Physiotherapist
- Career as a Yoga Instructor

2. Interview Task:

Take a short interview of a local sports coach/PE teacher and write:

- Their journey
- Challenges faced
- Advice for students

◆ Research-Based Questions

3. Research and list at least 5 government schemes promoting sports in India.
4. Compare Physical Education systems of India with any other country.
5. Find out how social media is influencing fitness trends among youth.

◆ Bonus (Higher Thinking Skills)

6. Do you think Physical Education should be a compulsory subject in schools? Justify your answer.