RAHUL INTERNATIONAL SCHOOL
SUMMERBREAK HOLIDAY HOMEWORK

Academic Session (2026-27)

GRADE-XI (Science)

**☀ Summer Holiday Message **

With summer holidays around the corner, our hearts swell with a spectrum of emotions– joy, excitement, and the promise of rejuvenation.
To ensure the continuity of learning while allowing ample time for rest and creativity, we have designed an enriching Holiday Homework It aims to keep you constructively engaged and help chase away boredom in meaningful ways.

- **Begin your day with a good book.**
- **Make it a habit to read an English newspaper daily.**
- ✍ **Complete your holiday assignments sincerely.**
- **Stay connected with your subject teachers for any support.**

Unleash your imagination, nurture your talents, and let your creativity shine. Have fun, stay safe, and make this summer a time of joyful learning and memorable moments.

Happy Holidays! —
The Rahul International School

RAHUL INTERNATIONAL SCHOOL
CLASS-XI (Science)
Summer Holidays (2026-27)
Homework

S No	Subjects	Work
1.	**Math's**	**Activity 1 – Sets in Daily Life (Chapter 1)** **Topic: Favourite Things Survey** **Instructions:** 1. Survey 20 students in your neighbourhood/friends. 2. Ask them: o Which sport they like o Which subject they like 3. Make two sets: o Set A = Students who like Cricket o Set B = Students who like Football 4. Find: o Union of sets o Intersection of sets o Students who like only one game 5. Draw a colourful Venn Diagram. **Materials Required**: • Chart paper • Sketch pens • Scale **Activity 2 – Trigonometry in Real Life (Chapter 3)** **Topic: Measuring Height Without Climbing** **Instructions:** 1. Choose a tree, pole, or building. 2. Measure the distance from the object. 3. Estimate the angle using a protractor/mobile app. 4. Use trigonometry to find the height. **Instructions** • Submit in a decorated file/folder. • Use coloured pens and diagrams. • Write neat observations and conclusions. • Mention real-life applications clearly.
2	**English**	Prepare a creative portfolio or documentary project on "Underrated Authors of English Literature. "Research and present any ***two or three lesser-known authors whose contributions to English literature were significant but are not widely celebrated.** **Your project should include:** 1. A brief introduction to each author 2. Important details about their life and literary background 3. Their major works and themes 4. Description of their writing style and unique features 5. Their contribution and impact on English literature 6. Quotes or extracts from their famous works 7. Pictures, illustrations, or timelines related to the authors 8. Your personal opinion on why these authors deserve more recognition 9. A conclusion summarizing your research findings

		Instructions: * Present the work in a neat and creative manner. * You may prepare it as a scrapbook, portfolio file, chart presentation, or documentary with visuals. * Include a cover page, index, and bibliography/references. * Use clear headings and proper English language. * Handwritten work will be appreciated.
3	**Physics**	**Instructions** ● Complete the entire holiday homework in a separate Physics holiday homework file. ● Do not do the work in class notebook or rough copy. ● Maintain neat handwriting and proper presentation. ● Draw all diagrams neatly using pencil and ruler. ● Use colored pencils for activity work. ● Submit the file after summer vacation. **Part A – Theory Questions** 1. Differentiate between scalar and vector quantities with suitable examples. 2. Explain triangle law of vector addition with diagram. 3. Explain parallelogram law of vector addition. 4. What is resolution of vectors? Explain rectangular components of a vector. 5. Define unit vector and position vector. 6. Explain dot product of vectors and its applications. 7. Explain cross product of vectors with examples. 8. State the properties of vector addition. **Part B – Numerical Questions** 1. Find the magnitude and direction of vector $A = 3i + 4j$. 2. Two vectors of magnitudes 8 N and 15 N act perpendicular to each other. Find the resultant vector. 3. Find the angle between the vectors $A = 2i + 3j$ and $B = 4i – j$. 4. A force of 50 N acts at an angle of 37° with the horizontal. Find its horizontal and vertical components. 5. Find the unit vector in the direction of $A = 6i + 8j$. 6. Two vectors have magnitudes 10 N and 20 N and the angle between them is 60°. Find the magnitude of their resultant. 7. A boat moves east with velocity 12 m/s while river water flows north with velocity 5 m/s. Find the resultant velocity of the boat. 8. Find the resultant of three vectors acting along the same line: 10 N east, 6 N west and 14 N east. 9. If $A = 3i + 2j – k$ and $B = 2i – 2j + 4k$, find (i) Dot product (ii) Angle between vectors. 10. Find the cross product of $A = 2i + 3j + k$ and $B = i – 4j + 2k$. 11. A vector of magnitude 25 units makes angles 60° and 45° with x-axis and y-axis respectively. Find its components. 12. Find the magnitude of resultant of two equal vectors each of magnitude 10 units when the angle between them is (i) 0° (ii) 90° (iii) 180°. 13. An airplane flies north at 200 km/h while wind blows toward east at 150 km/h. Find the resultant velocity and direction of the airplane. 14. A particle moves 5 m east, then 12 m north. Find the displacement vector and magnitude. 15. Prove using vectors: $\|A + B\|^2 = A^2 + B^2 + 2A \cdot B$. **Part C – Vector Prove Questions** 16. Prove that: $(A + B) \cdot (A – B) = A^2 – B^2$. 17. Prove that the dot product of two perpendicular vectors is zero.

		18. Prove that: $\|A - B\|^2 = A^2 + B^2 - 2A \cdot B$. 19. If $A = i + 2j + 3k$ and $B = 2i - j + k$, prove that $A \cdot B = B \cdot A$. 20. Prove that the magnitude of a unit vector is unity: $\|\hat{a}\| = 1$. **Activity Work** ● Triangle law of vector addition ● Parallelogram law of vector addition ● Resolution of vectors into components **Submission Date: First week of July 2026**
4	**Biology**	● **Activity Work (do any one):-** 1.Prepare a herbarium file by collecting and preserving eight different leaves. 2.Prepare a chart on five kingdom classification. 3.Collect pictures of different microorganisms and paste them in a scrapbook with their names and uses. ●**Prepare a project file on any one topic:** 1.Five Kingdom Classification. 2.Cell Organelles and Their Functions. Viruses: Boon or Bane 3.Biodiversity and Conservation 4.Economic Importance of Bacteria and Fungi. **Include:** -Cover Page -Introduction -Diagrams/Pictures -Explanation of Topic -Interesting Facts -Conclusion -Bibliography •**Instructions:-** -Complete the homework neatly in a separate biology notebook/file. -Draw neat and labelled diagrams using pencils and colours. -Use coloured pens for headings. -Submit the homework after the summer vacation. -Learn the all work from notebook. ● Activity Work (do any one):- 1.Prepare a herbarium file by collecting and preserving eight different leaves. 2.Prepare a chart on five kingdom classification. 3.Collect pictures of different microorganisms and paste them in a scrapbook with their names and uses. ●Prepare a project file on any one topic: 1.Five Kingdom Classification. 2.Cell Organelles and Their Functions. Viruses: Boon or Bane 3.Biodiversity and Conservation 4.Economic Importance of Bacteria and Fungi. **Include:** -Cover Page -Introduction -Diagrams/Pictures

		-Explanation of Topic -Interesting Facts -Conclusion -Bibliography **•Instructions:-** -Complete the homework neatly in a separate biology notebook/file. -Draw neat and labelled diagrams using pencils and colours. -Use coloured pens for headings. -Submit the homework after the summer vacation. -Learn the all work from notebook.
5	**Painting**	Still life - 4 (two colour and two Pencil shading) Composition - 1 Pen shading Nature drawing (Landscape) - 1 water colour Geometric drawing - 1 Pencil shading **And complete your class work.**
7	**IP**	**Instructions:** 1. Complete all questions in your Python notebook. 2. Write the program, dry run, and output for each question. 3. Submit the homework on the reopening day of the school. **Part A: Theory** 1. What is Python? Write any five features of Python. 2. Differentiate between Compiler and Interpreter. 3. Explain the following: a) Variables b) Data Types c) Operators d) Input and Output Functions 4. Write the syntax of: a) if statement b) if-else statement **Part B: Practical Programs** 1. Write a program to display your name, class, and section. 2. Write a program to add two numbers entered by the user. 3. Write a program to calculate the area of a rectangle. 4. Write a program to convert temperature from Celsius to Fahrenheit. 5. Write a program to find the square and cube of a number. 6. Write a program to check whether a number is positive or negative. 7. Write a program to check whether a number is even or odd. 8. Write a program to find the greater of two numbers. 9. Write a program to find the greatest of three numbers using if-else statements. 10. Write a program to check whether a student has passed or failed (Pass Marks = 33). **Part C: Activity Work** 1. Prepare a chart showing Python data types and operators. 2. Collect information about the history and applications of Python and write a brief report (150–200 words). 3. Write five real-life examples where decision-making (if-else) is used. **Part D: Challenge Questions** 1. Write a program to check whether a number is divisible by 5 and 11. 2. Write a program to check whether a person is eligible to vote (age 18 or above). 3. Create a menu-driven program that performs addition, subtraction, multiplication, and division using if-else statements. **Part E: Multiple Choice Questions (MCQs)** **Choose the correct answer:** 1. Python is a:

a) Low-level Language b) High-level Language
c) Machine Language d) Assembly Language

2. Which function is used to take input from the user?
   a) print() b) display() c) input() d) get()
3. Which symbol is used for assignment in Python?
   a) == b) = c) != d) <=
4. Which data type is used to store whole numbers?
   a) float b) string c) int d) bool
5. Which statement is used for decision making in Python?
   a) for b) while c) if d) print

Part F: Assertion and Reason Questions

Directions: Choose the correct option.

A. Both Assertion (A) and Reason (R) are true, and R is the correct explanation of A.
B. Both A and R are true, but R is not the correct explanation of A.
C. A is true, but R is false.
D. A is false, but R is true.

1. **Assertion (A):** Python is an interpreted language.
   Reason (R): Python code is executed line by line.
2. **Assertion (A):** The if statement is used for decision making.
   Reason (R): It executes a block of code only when the given condition is true.
3. **Assertion (A):** Variables are used to store data in Python.
   Reason (R): A variable can store only one type of value throughout the program.
4. **Assertion (A):** The input() function accepts data from the user.
   Reason (R): The print() function is used to display output on the screen.
5. **Assertion (A):** The else block is executed when the condition in the if statement is false.
   Reason (R): Every if statement must have an else block.

"Wishing you all a very happy summer vocation also we encourage you to approach the syllabus of Ut-1 enthusiasm and dedication, impressing each opportunity for discovery and development."

Thank you