

PM SHRI KENDRIYA VIDYALAYA RAJOURI

AUTUMN BREAK HOLIDAY HOMEWORK – 2026

CLASS XI

ENGLISH

Make the most of your Autumn Break by reading the prescribed chapters carefully and completing the written work neatly in your English notebook. Focus on understanding the text, building vocabulary, and applying the ideas from each chapter to real-life situations.

1. Read the following chapters:

(i) Birth

(ii) The Tale of Melon City

2. Written Work (English Notebook):

- For each of the chapters, write the following:
- Theme of the chapter.
- Meanings of any 10 words from the chapter.
- Summary of the chapter in your own words.
- Textual questions and answers.

3. Competency-Based Questions:

Prepare and answer 5 competency-based questions from each chapter and write them in your English notebook. The questions should test your understanding, interpretation, critical thinking, and ability to connect the events and themes of the chapter with real-life situations.

General Instructions:

- Complete all work neatly and legibly in your English notebook.
- Use your own words and avoid copying summaries or answers directly from the internet.
- Support answers with relevant details from the chapters..
- Submit the completed holiday homework on the first working day after the Autumn Break.

CHEMISTRY

Topic: Chemical Bonding & Molecular Structure (Question Paper)

Q1. Define chemical bond. Why do atoms combine to form molecules?

Q2. Write the Lewis structures for the following molecules and ions:

- CO_2
- HNO_3
- CO_3^{2-}
- NH_4^+

Q3. Calculate the formal charge on each oxygen atom in the ozone (O_3) molecule.

Q4. Explain why HF has a higher boiling point than HCl despite chlorine being larger and having higher London dispersion forces.

Q5. Why does BF_3 have a dipole moment of zero even though it has polar bonds?

HINDI

1. प्लास्टिक के थैलों का प्रयोग न करने के लिए जनजागरूकता- विज्ञापन बनाइए।

2. आप किसी प्रतिष्ठित विद्यालय में हिंदी शिक्षक के पद के लिए आवेदन करना चाहते हैं। अपनी शैक्षिक योग्यता, कौशल एवं अनुभव का उल्लेख करते हुए स्ववृत्त तैयार कीजिए।

3. मोबाइल फोन का बढ़ता प्रयोग — इसके लाभ और हानियों पर आधारित पटकथा तैयार कीजिए।

ईमानदारी का महत्व — किसी प्रेरक घटना पर आधारित लघु पटकथा लिखिए।

4. शब्दकोश में शब्दों को वर्णक्रम के अनुसार व्यवस्थित करने की प्रक्रिया को उदाहरण सहित समझाइए।

5. निम्नलिखित 20 शब्दों को शब्दकोश के क्रम में व्यवस्थित कीजिए।

विद्यालय, विद्यार्थी, विज्ञान, विकास, विनय, विशाल, विदेश, विश्वास, विचार, विजय, विशेष, विवाह, विभाग, विमान, विरोध, विकल्प, विनोद, विवेक, विश्राम, विधान।

MATHEMATICS

Chapter: Sequence and Series

General Instructions

1. Complete all questions in your mathematics notebook.
2. Write all steps clearly and neatly.

3. Draw graphs wherever required.
4. Learn all important formulas related to sequences and series.

Section A: Multiple Choice Questions (MCQs)

1. The n th term of the sequence 2, 4, 6, 8, ... is: (a) $n + 2$ (b) $2n$ (c) $2n + 1$ (d) n^2
2. The common difference of the AP 7, 12, 17, 22, ... is: (a) 3 (b) 4 (c) 5 (d) 7
- (d) 43 3. The 10th term of the AP 3, 7, 11, 15, ... is: (a) 35 (b) 39 (c) 40
4. The common ratio of the GP 2, 6, 18, 54, ... is: (a) 2 (b) 3 (c) 4 (d) 6
5. The sum of the first n natural numbers is: (a) n^2 (b) $n(n+1)/2$ (c) $n(n-1)/2$ (d) $2n$

Section B: Very Short Answer Questions

1. Define a sequence and a series with one example each.
2. Write the first five terms of the sequence whose n th term is $a_n = 3n + 2$.
3. Find the common difference of the AP: 15, 11, 7, 3, ...
4. Find the common ratio of the GP: 81, 27, 9, 3, ...
5. Write the formula for the n th term of an AP.
6. Write the formula for the sum of the first n terms of an AP.
7. Find the arithmetic mean between 8 and 20.
8. Find the geometric mean between 4 and 16.

Section C: Short Answer Questions

1. Find the 15th term of the AP: 4, 9, 14, 19, ...
2. Which term of the AP 3, 8, 13, 18, ... is 78?
3. Find the sum of the first 25 natural numbers.
4. Find the sum of the first 20 terms of the AP: 2, 5, 8, 11, ...
5. Insert four arithmetic means between 6 and 36.
6. Find the 8th term of the GP: 3, 6, 12, 24, ...

7. Find the sum of the first 6 terms of the GP: 2, 6, 18, 54, ...
8. Insert two geometric means between 4 and 108.

Section D: Long Answer Questions

1. Find the sum of the first 30 terms of the AP: 5, 8, 11, 14, ...
2. The 7th term of an AP is 34 and the 13th term is 64. Find: (a) the first term, (b) the common difference, and (c) the sum of the first 20 terms
3. Find the sum of the first 10 terms of the GP: 1, 2, 4, 8, ...
4. The first term of a GP is 5 and its common ratio is 3. Find its 6th term and the sum of its first 6 terms.
5. If the sum of the first n terms of a sequence is $S = 3n^2 + 2n$, find its n th term and determine whether the sequence is an AP.

Section E: Higher-Order Thinking Skills (HOTS)

1. Find three numbers in AP whose sum is 21 and whose product is 315.
2. Three numbers are in GP. Their sum is 26 and their product is 216. Find the numbers.
3. If a, b, c are in AP, prove that $2b = a + c$.
4. If a, b, c are in GP, prove that $b^2 = ac$.
5. Find the sum: $2+5+8+11+\dots+59$.

Section F: Activity-Based Learning

Activity 1: Fibonacci Sequence

Write the first 15 terms of the Fibonacci sequence, starting with 0 and 1. Answer: (a) How is each new term obtained? (b) Identify the pattern. (c) Find the ratio of consecutive terms for the last five pairs.

Activity 2: Real-Life Application of AP

A student saves 20 on the first day, 30 on the second day, 40 on the third day, and so on. Find: (a) the amount saved on the 15th day, (b) the total savings after 15 days, and (c) the type of sequence formed.

Activity 3: Real-Life Application of GP

A ball bounces to half the height of its previous bounce. If its first bounce reaches a height of 16 metres, write the heights of its first five bounces and identify the common ratio.

Section G: Formula Revision

Write and learn the following formulas:

1. nth term of an AP.
2. Sum of the first n terms of an AP.
3. Arithmetic mean between two numbers.
4. nth term of a GP.
5. Sum of the first n terms of a GP.
6. Geometric mean between two positive numbers.
7. Sum of the first n natural numbers.
8. Sum of the squares of the first n natural numbers.
9. Sum of the cubes of the first n natural numbers.

Submission: Complete all sections neatly in your mathematics notebook and revise the formulas before returning to school

BIOLOGY

1. Complete notes of Chapters- Biomolecules and Cell division and Cell cycle with NCERT exercise .
2. Revise Complete syllabus (Unit -1,2,3) for half yearly exams.
3. Complete lab manual.

PHYSICS

Practice Questions from Study material from chapter 1-7 for Mock test of first book.

PAT

1. Prepare detailed notes on Unit 4.
2. Revise Unit 4 thoroughly for the upcoming assessment.

COMPUTER SCIENCE

Focus: Unit 1 (Computer Systems & Organisation) & Unit 2 (Computational Thinking & Programming - I)
Based on KVS Previous Years' Question Papers

General Instructions for Students:

- Maintain a separate 100-page Classwork/Homework notebook for completing this Autumn Break assignment.
- All Python programs must be written along with their expected output.
- Solve all questions independently. These questions are strictly curated from previous years' KVS Half-Yearly and Autumn Assessment papers.
- Submit the completed notebook to your Computer Science teacher on the first day of school reopening.

Day 1: Computer Systems & Memory Concepts

Focus Topics: *Functional components of a computer, Types of Memory (RAM, ROM, Cache), Primary vs Secondary Storage.*

Question Tag	Previous Year Question / Task
Q1 (1 Mark)	Differentiate between RAM and ROM in terms of volatility and accessibility.
Q2 (1 Mark)	What is Cache Memory? Why is it faster than main memory?
Q3 (2 Marks)	Draw a neatly labeled block diagram of a computer system depicting CPU, ALU, CU, Input, Output, and Memory units.
Q4 (2 Marks)	Explain the role of Compiler and Interpreter. State two differences between them.
Q5 (3 Marks)	Classify the following into Hardware, System Software, Application Software, and Utility Software: a) Operating System b) Python IDLE c) Hard Disk d) Anti-virus e) MS Word f) BIOS

Day 2: Number Systems & Encoding Schemes

Focus Topics: *Binary, Octal, Decimal, Hexadecimal conversions; ASCII, ISCII, UNICODE.*

Question Tag	Previous Year Question / Task
--------------	-------------------------------

Q1 (2 Marks)	Convert the following Decimal numbers to Binary: a) $(45)_{10}$ b) $(128)_{10}$
Q2 (2 Marks)	Convert the following Binary numbers to Decimal: a) $(110101)_2$ b) $(10111)_2$
Q3 (2 Marks)	Convert $(2B7)_{16}$ to Binary and Octal.
Q4 (2 Marks)	What is UNICODE? How does it differ from ASCII?
Q5 (2 Marks)	Perform Hexadecimal addition: $(A5)_{16} + (1F)_{16}$.

Day 3: Boolean Logic & Truth Tables

Focus Topics: Boolean Operators (AND, OR, NOT), Truth Tables, De Morgan's Laws, Logic Gates.

Question Tag	Previous Year Question / Task
Q1 (1 Mark)	State the principle of Duality in Boolean Logic.
Q2 (2 Marks)	Draw the logic circuit diagram for the Boolean expression: $F(A, B, C) = A'B + BC' + A'C$
Q3 (2 Marks)	Verify De Morgan's First Law $(A + B)' = A' \cdot B'$ using a Truth Table.
Q4 (2 Marks)	Construct a Truth Table for the expression: $X = (A + B) \cdot (A' + C)$
Q5 (3 Marks)	Write the Boolean expression for the logic gate circuit showing AND, OR, and NOT gates combined.

Day 4: Python Basics, Data Types & Operators

Focus Topics: Tokens, Variables, Identifiers, Data Types, Operators (Arithmetic, Relational, Logical, Bitwise, Assignment).

Question Tag	Previous Year Question / Task
Q1 (1 Mark)	Which of the following are valid variable names in Python? a) 2nd_name b) _total c) class d) student_age
Q2 (2 Marks)	Evaluate the following Python expressions: a) $15 // 4 + 12 \% 5 * 2 ** 3$ b) $5 > 3$ and $8 \leq 12$ or not $(4 == 4)$

Q3 (2 Marks)	Differentiate between Mutable and Immutable data types in Python with two examples each.
Q4 (2 Marks)	What will be the output of the following Python code? <pre>x = 10 x, y = x + 5, x * 2 print(x, y)</pre>
Q5 (3 Marks)	Write a Python program to calculate the Simple Interest and Total Amount after taking Principal, Rate, and Time from the user.

Day 5: Conditional Statements (if, if-else, if-elif-else)

Focus Topics: *Decision Making, Nested Conditions, Logical conditions.*

Question Tag	Previous Year Question / Task
Q1 (2 Marks)	Write a Python program to check whether a given year is a Leap Year or not.
Q2 (3 Marks)	Write a Python program to input three numbers and find the largest among them without using the max() function.
Q3 (3 Marks)	A school awards grades based on marks: - 90 to 100: Grade A - 75 to 89: Grade B - 50 to 74: Grade C - Below 50: Grade D Write a Python program to take input of marks and print the corresponding grade.
Q4 (2 Marks)	Rewrite the following code snippet after removing syntax errors (underline the corrections): <pre>a = int(input("Enter number")) If a = 10 print("Ten") else print("Not Ten")</pre>

Day 6: Iterative Statements (while loop & range function)

Focus Topics: *while loop, loop counters, condition testing, basic numeric algorithms.*

Question Tag	Previous Year Question / Task
Q1 (2 Marks)	Write a Python program using a while loop to print the sum of digits of a number given by the user.

Q2 (2 Marks)	Write a Python program to check whether a given number is a Palindrome or not.
Q3 (3 Marks)	Write a Python program to print the Fibonacci series up to N terms.
Q4 (3 Marks)	Predict the output of the following code snippet: <pre> count = 1 sum_val = 0 while count <= 5: if count % 2 == 0: sum_val += count count += 1 print("Result:", sum_val) </pre>

Day 7: Iterative Statements (for loop, break, continue, pass)

Focus Topics: *for loop, range() variants, loop control statements, prime number check.*

Question Tag	Previous Year Question / Task
Q1 (2 Marks)	Explain the difference between break and continue statements with suitable Python code examples.
Q2 (3 Marks)	Write a Python program to check whether a given positive integer is a Prime Number or not.
Q3 (3 Marks)	Write a Python program to display the multiplication table of a given number from 1 to 10 using a for loop.
Q4 (2 Marks)	Predict the output: <pre> for i in range(1, 10, 2): if i == 5: continue print(i, end="#") </pre>

Day 8: Nested Loops & Pattern Printing

Focus Topics: *Nested for/while loops, multi-line pattern design.*

Question Tag	Previous Year Question / Task
Q1 (3 Marks)	Write a Python program using nested loops to print the following pattern: <pre> * * * * * * * * * * </pre>

* * * * *

Q2 (3 Marks)	Write a Python program to print the following number pattern: 1 1 2 1 2 3 1 2 3 4
Q3 (3 Marks)	Write a Python program to print the following character pattern: A A B A B C A B C D
Q4 (2 Marks)	How many times will the inner loop run in the following code snippet? for i in range(3): for j in range(4): print(i, j)

Day 9: String Manipulation - Basics & Operations

Focus Topics: String indexing, slicing, concatenation, repetition, traversal.

Question Tag	Previous Year Question / Task
Q1 (2 Marks)	Given string S = "COMPUTER SCIENCE", write the output for: a) S[0:8:2] b) S[-7:] c) S[::-1]
Q2 (3 Marks)	Write a Python program to count the total number of Vowels, Consonants, and Spaces in a given string.
Q3 (3 Marks)	Write a Python program to check if a string entered by the user is a Palindrome without using built-in reverse methods.
Q4 (2 Marks)	Predict the output: msg = "KVS Exam 2026" print(msg[4:8] + "#" + msg[:3])

Day 10: Revision & Mock PYQ Paper Solving

Focus Topics: Full syllabus assessment of Unit 1 & Unit 2 covered prior to Autumn break.

Question Tag	Previous Year Question / Task
--------------	-------------------------------

Q1 (Section A - 1 Mark)	Which operating system component manages memory allocation?
Q2 (Section A - 1 Mark)	What is the output of <code>print(3 ** 2 ** 3)</code> ?
Q3 (Section B - 2 Marks)	State and prove idempotent law of Boolean algebra.
Q4 (Section C - 3 Marks)	Write a Python program to reverse a number entered by the user using a while loop.
Q5 (Section D - 5 Marks)	Write a comprehensive Python program with a user menu: 1. Check if a number is Armstrong 2. Find Factorial of a number 3. Exit

Evaluation & Marking Scheme

The Autumn Break Homework will be assessed as part of Subject Enrichment Activities (5 Marks total) based on the following rubric:

Parameter	Description	Weightage
Completeness & Timeliness	All 10 days' tasks completed thoroughly and submitted on the reopening day.	2 Marks
Correctness & Logic	Accuracy of code logic, outputs, memory diagrams, and Boolean truth tables.	2 Marks
Neatness & Presentation	Clean handwriting, structured code formatting, and adherence to guidelines.	1 Mark