PM SHRI KENDRIYA VIDYALAYA MUZAFFARNAGAR(SHIFT-I)

☀ SUMMER VACATION HOLIDAY HOMEWORK ☀

Computer Science (Code 083) | Class XII | CBSE Board

Session: 2026-2027

Subject Teacher:Sunit Kumar, PGT CS

School	**PM SHRI Kendriya Vidyalaya Muzaffarnagar (Shift-I)**
Session	**2026-2027**
Subject Teacher	**Sunit Kumar, PGT CS**
Subject & Code	**Computer Science — Code 083**
Chapters Covered	**Ch-1: Python Revision Tour | Ch-2: Working with Functions**
Student Name	
Class & Section	XII — _____
Roll Number	
Submission Date	First working day after Summer Vacation

GENERAL INSTRUCTIONS

1. This Holiday Homework covers TWO chapters: Chapter 1 — Python Revision Tour and Chapter 2 — Working with Functions, as per the CBSE Class XII Computer Science Syllabus 2026-27 (Code 083).
2. The paper has FIVE Sections — A to E. Attempt ALL questions.
3. Section A: MCQ (10×1=10 M) | Section B: Assertion-Reasoning (10×1=10 M) | Section C: Case-Based (10×2=20 M) | Section D: Competency-Based (10×3=30 M) | Section E: Programming (10×3=30 M) | TOTAL: 100 Marks
4. ALL programming questions must be answered in Python only.
5. Write your answers neatly in your CS Holiday Homework notebook/file.
6. Questions are framed from Previous Year CBSE Board Papers (2022–2025) pattern.
7. Do NOT copy from peers. Original work will be awarded full marks.

SECTION A — Multiple Choice Questions (MCQ) [10 × 1 = 10 Marks]

Choose the correct answer. Write the option letter AND the text of your answer.

Q1. Which of the following is an IMMUTABLE data type in Python?

(a) List
(b) Dictionary
(c) Tuple
(d) Set

Answer: _____

Q2. What will be the output of the following statement? print(type(10/2))

(a) <class 'int'>
(b) <class 'float'>
(c) <class 'str'>
(d) Error

Answer: _____

Q3. Which keyword is used to define a function in Python?

(a) func
(b) define
(c) def
(d) function

Answer: _____

Q4. Identify the OUTPUT of the following: S = "MISSISSIPPI" print(S[:4] + "#" + S[-5:])

(a) MISS#SIPPI
(b) MISS#IPPI
(c) MISS#ISSI
(d) MISI#SIPPI

Answer: _____

Q5. A variable defined inside a function and NOT accessible outside it is called a:

(a) Global variable
(b) Default variable
(c) Local variable
(d) Static variable

Answer: _____

Q6. Which of the following function calls uses KEYWORD arguments?

(a) area(5, 10)
(b) area(l=5, b=10)
(c) area(5)
(d) area()

Answer: _____

Q7. What is the output? def fun(x, y=10): return x + y print(fun(5))

(a) 5
(b) 10
(c) 15
(d) Error

Answer: _____

Q8. Which of the following correctly identifies a SYNTAX ERROR?

(a) 5 + 3.0
(b) '15' + 3
(c) print 'Hello'
(d) x = True + 1

Answer: _____

Q9. What will be the output? L = [10, 20, 30, 40] print(L[1:3])

(a) [10, 20]
(b) [20, 30]
(c) [20, 30, 40]
(d) [10, 20, 30]

Answer: _____

Q10. The `global` keyword inside a function is used to:

(a) Create a new local variable
(b) Refer to and modify a global variable
(c) Delete a global variable
(d) Make a variable read-only

Answer: _____

SECTION B — Assertion & Reasoning Questions [10 × 1 = 10 Marks]

Direction: Read both Assertion (A) and Reason (R) carefully. Choose the correct option:

(a) Both A and 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.

Q1.

Assertion (A): In Python, strings are immutable.
Reason (R): You cannot change individual characters of a string using indexing (e.g., s[0]='A' raises a TypeError).

Answer: _____

Q2.

Assertion (A): Positional arguments in Python must be passed in the exact order as defined in the function signature.
Reason (R): Python functions automatically assign default values to positional arguments.

Answer: _____

Q3.

Assertion (A): A function can return multiple values in Python.
Reason (R): Python returns multiple values as a tuple when separated by commas in the return statement.

Answer: _____

Q4.

Assertion (A): The `global` keyword must be used inside a function to read a global variable.
Reason (R): Without `global`, a function can READ a global variable but cannot modify it unless `global` is declared.

Answer: _____

Q5.

Assertion (A): Python lists and tuples both support indexing and slicing.
Reason (R): Both lists and tuples are sequence types in Python; the key difference is mutability.

Answer: _____

Q6.

Assertion (A): A function without an explicit `return` statement returns `None` by default.
Reason (R): The `return` statement is mandatory in every Python function.

Answer: _____

Q7.

Assertion (A): Default parameters in a function definition must always appear AFTER positional (non-default) parameters.
Reason (R): If default parameters appear before positional ones, Python raises a SyntaxError due to ambiguity in argument mapping.

Answer: _____

Q8.

Assertion (A): The `len()` function can be used on strings, lists, tuples, and dictionaries.
Reason (R): All four are sequence or collection types that store multiple elements and support `len()`.

Answer: _____

Q9.

Assertion (A): Logical errors in Python are detected by the interpreter at runtime.
Reason (R): Logical errors produce incorrect output but do not crash the program; they must be found through testing and debugging.

Answer: _____

Q10.

Assertion (A): In Python, a variable defined inside an `if` block is accessible outside that block in the same function.
Reason (R): Python uses function scope (not block scope), so variables defined inside `if`, `for`, or `while` blocks are accessible throughout the function.

Answer: _____

SECTION C — Case-Based Questions [10 × 2 = 20 Marks]

Read each case carefully and answer the questions that follow:

CASE 1: The Library Management Program

Ananya is building a library management system in Python. She writes the following code:

```
books = ['Python Basics', 'Data Science', 'AI Foundations', 'Web Dev']
def search_book(title, lib=books):
    if title in lib:
        return 'Book Found: ' + title
    else:
        return 'Not Available'

result = search_book('AI Foundations')
print(result)
print(search_book('Cloud Computing'))
```

QC1.1. What type of argument is `lib=books` in the function definition? What is it called, and what is its purpose? (2 marks)

QC1.2. Write the output produced by this program when it is executed. (2 marks)

CASE 2: Score Calculator

Rahul's teacher gave him the following Python code and asked him to find the output and spot the scope of variables:

```
score = 100

def update(marks):
    global score
    score = score + marks
    bonus = 10
    print('Inside function:', score, bonus)

update(25)
print('Outside function:', score)
# print(bonus)  <- if uncommented, what happens?
```

QC2.1. Write the exact output produced by the above code. (2 marks)

QC2.2. What will happen if the commented `print(bonus)` line is uncommented and executed? Name the type of error that will occur and explain why. (2 marks)

CASE 3: String Operations — Palindrome Checker

Observe the following Python code written by Meera for a string-based task:

```
S = "Racecar Car Radar"
L = S.split()
for W in L:
    x = W.upper()
    if x == x[::-1]:
        for I in x: print(I, end="*")
    else:
        for I in W: print(I, end="#")
    print()
```

QC3.1. Write the complete output of the above code step by step. (2 marks)

QC3.2. What does `x[::-1]` do? What concept from Python Revision Tour does this belong to? (2 marks)

CASE 4: Mutable vs Immutable in Functions

Vikram passes a list and a number to two different functions and observes the results:

```
def modify_list(lst):
    lst.append(99)
    print('Inside:', lst)

def modify_num(n):
    n = n + 10
    print('Inside:', n)

my_list = [1, 2, 3]
my_num  = 5
modify_list(my_list)
modify_num(my_num)
print('Outside list:', my_list)
print('Outside num:', my_num)
```

QC4.1. Write the complete output of this code. (2 marks)

QC4.2. Why does `my_list` change outside the function but `my_num` does not? Explain using the concept of mutable and immutable types. (2 marks)

CASE 5: Dictionary Operations

Ritu writes the following code during a Python revision exercise:

```
D = {'month': 'DECEMBER', 'exam': 'PREBOARD1'}
D['month'] = 'JANUARY'
D['EXAM'] = 'PRE2'
print(D.items())
```

```
print(len(D))
for k in D:
    print(k, '->', D[k])
```

QC5.1. Write the complete output of this code. (2 marks)

QC5.2. Why does the dictionary have 3 keys instead of 2 after the update? Relate this to how Python dictionary keys work. (2 marks)

SECTION D — Competency-Based Questions [10 × 3 = 30 Marks]

Answer in 3-5 sentences. Use examples wherever relevant. Apply and Analyse level questions (HOTS).

QD1. Differentiate between MUTABLE and IMMUTABLE data types in Python. Give TWO examples of each. Why does this distinction matter when passing arguments to functions? (3 marks)

QD2. Explain the FOUR types of function arguments in Python with syntax and one example each: Positional, Default, Keyword, and Variable-length. (3 marks)

QD3. What is LOCAL scope and GLOBAL scope in Python? Explain the LEGB rule (Local–Enclosing–Global–Built-in) with a suitable example. (3 marks)

QD4. Distinguish between the following Python string methods with examples: (i) find() vs index() (ii) split() vs join() (iii) strip() vs replace() (3 marks)

QD5. Rohan writes a function that is supposed to return BOTH the sum AND the product of two numbers but it only seems to return one value. Explain how Python supports returning multiple values from a function. Write a correct version of such a function. (3 marks)

QD6. Compare LIST, TUPLE, and DICTIONARY in Python under: (i) Mutability (ii) Ordering (iii) Syntax (iv) Use case. Present as a table or structured comparison. (3 marks)

QD7. Explain what happens step-by-step when Python executes: `V=50 ; def Change(N): global V ; V,N=N,V ; print(V,N,sep='#',end='@') ; Change(20) ; print(V)` — trace the output and explain global variable behavior. (3 marks)

QD8. What is IMPLICIT TYPE CONVERSION in Python? How does it differ from EXPLICIT TYPE CONVERSION (typecasting)? Give TWO examples of each. (3 marks)

QD9. Neha wrote a function `def calc(a, b=5, *args)` and called it as `calc(1, 2, 3, 4)`. Predict what `a`, `b`, and `args` will contain during this call. Explain the role of `*args` in Python functions. (3 marks)

QD10. Describe any THREE common types of Python errors (Syntax, Runtime, Logical) with one original example of each. Explain how you would detect and fix each type. (3 marks)

SECTION E — Programming Questions [10 × 3 = 30 Marks]

This section has 4 sub-types: (i) Output Finding (ii) Error Finding & Correction (iii) Function Writing (iv) Mini Programs. All answers must be in Python.

PART E-I — Find the Output (Questions P1 to P4)

QP1. Write the output of the following Python code: (3 marks)

```
def mystery(s):
    result = ''
    for i in range(len(s)-1, -1, -2):
        result += s[i]
    return result

print(mystery("KEYBOARD"))
print(mystery("PYTHON"))
```

Output:

QP2. Find all possible outputs of the following code. Also state the minimum and maximum values of `b`: (3 marks)

```
import random
a = "Wisdom"
b = random.randint(1, 6)
for i in range(0, b, 2):
    print(a[i], end="#")
```

Possible Outputs / Min-Max of b:

QP3. Write the output of this code step by step: (3 marks)

```
T = (9, 18, 27, 36, 45, 54)
L = list(T)
L1 = []
for i in L:
    if i % 6 == 0:
        L1.append(i)
T1 = tuple(L1)
```

```
print(T1)

D = {1:'one', 2:'two', 3:'three'}
res = []
for k, v in D.items():
    if 'o' in v:
        res.append(k)
print(res)
```

Output:

QP4. Trace and write the output of this function-based code: (3 marks)

```
c = 10
def add():
    global c
    c = c + 2
    print(c, end='#')

add()
c = 15
print(c, end='%')

def FunStr(S):
    T = ''
    for i in S:
        if i.isdigit():
            T = T + i
    return T

X = "PYTHON 3.9"
Y = FunStr(X)
print(X, Y, sep="*")
```

Output:

PART E-II — Error Finding & Correction (Questions P5 & P6)

QP5. The following code has SYNTAX and LOGICAL errors. Rewrite the corrected code. Underline ALL corrections made: (3 marks)

```
def swap_first_last(tup)
```

```
    if len(tup) < 2:
        return tup
    new_tup = (tup[-1],) + tup[1:-1] + (tup[0])
    return new_tup

result = swap_first_last((1, 2, 3, 4))
print("Swapped tuple: " result)
```

Errors found and corrected code:

QP6. Identify the errors in this function, state the type of each error, and write the corrected version: (3 marks)

```
def calculate_average(numbers)
    total = 0
    for num in numbers:
        total = total + num
    avg = total / len(numbers)
    print average
    return avg

marks = [85, 90, 78, 92, 88]
result = calculate_average(marks)
print("Average:", Result)
```

Errors and corrected code:

PART E-III — Write the Functions (Questions P7 to P10)

QP7. Write a Python function `COUNT_VOWELS(sentence)` that takes a string as input and returns the count of vowels (a, e, i, o, u — both upper and lower case) in the string. Also call the function with the input 'Hello World from India' and display the result. (3 marks)

QP8. Write a Python function `SECOND_LARGEST(lst)` that accepts a list of integers and returns the second largest element without sorting the list. Handle the case where the list has fewer than 2 elements. (3 marks)

QP9. Write a Python function `WORD_FREQUENCY(sentence)` that takes a string sentence as input and returns a dictionary where keys are words and values are their frequency count. Ignore case (treat 'Python' and 'python' as the same word). (3 marks)

QP10. [PYQ Pattern — 2025 CBSE Board Style] Write a user-defined function `STUDENT_GRADE(name, marks)` in Python that: (i) Accepts a student's name and a list of marks (5 subjects). (ii) Calculates the percentage. (iii) Assigns a grade: A+ (≥90), A (≥80), B (≥70), C (≥60), D (below 60). (iv) Returns and prints both the percentage and the grade. Call the function with name='Arjun' and marks=[88, 92, 76, 85, 90]. (3 marks)

★ BONUS ACTIVITY (Optional — Extra Credit) ★

Create a Python mini-project: 'Student Report Card Generator'

- Takes names and marks (5 subjects) for at least 5 students using functions.
- Uses global variables to keep track of class topper.
- Uses lists and dictionaries to store and retrieve data.
- Displays a formatted report card for each student with percentage and grade.
- Write the complete code in your notebook AND execute it — paste the screenshot output.

Best entries will be rewarded and displayed on the school CS board!

HOLIDAY HOMEWORK
SUMMER VACATION (08.05.2026 to 16.06.2026)
CLASS – XII
MATHS

Ex 1.1: 1Vb, 5, 7, 8, 13, 14

Ex 1.2: 1, 3,4,7,10

Misc 1: 1, 2, 3, 4,5

Ex2.1: 11, 13

Ex 2.2: 2, 5, 7, 9, 10, 11,

Ex-Misc 2: 1,2,6,7, 9, 10, 14

HOLIDAY HOMEWORK
SUMMER VACATION (08.05.2026 to 16.06.2026)
CLASS – XII

SUBJECT: Accountancy

1. Fundamentals of Partnership - Partnership deed, profit sharing ratio, capital accounts, interest on capital/drawings, P&L Appropriation
2. Goodwill - Meaning, factors, methods: Average Profit, Super Profit, Capitalisation. Journal entries jab naya partner aaye ya retire ho

Project: Cash Flow Statement - As per AS-3. 3 activities: Operating, Investing, Financing. Indirect method se banana hota hai CBSE me.

Mukesh kumar
PGT- commerce

HOLIDAY HOMEWORK
SUMMER VACATION (08.05.2026 to 16.06.2026)
CLASS – XII

SUBJECT: Business Studies

1. Nature & Significance of Management - Features, objectives, importance, management as science/art/profession
2. Principles of Management - Fayol ke 14 principles + Taylor ke scientific management

Project: Principles of Management - Fayol ke kisi 3-4 principles ko real company pe apply karke case study banao. Jaise McDonald's me Division of Work, ya DMart me Order principle.

Mukesh kumar
PGT- commerce

HOLIDAY HOMEWORK
SUMMER VACATION (08.05.2026 to 16.06.2026)
CLASS – XII

SUBJECT: PHYSICS

1. Wirte 8 experiments and 6 activity in your practical note book
2. And solve the this work sheet in your class work note book

WORKSHEET-1

UNIT-1

ELECTRICCHARGESANDFIELDS

1]. A polythene piece rubbed with wool is found to have a negative charge of 3 x10^{-7}C.
(a)Estimate the number of electrons transferred (from which to which?)
(b)Is there a transfer of mass from wool to polythene?

2]. Four point charges q_A=2μC, q_B=-5μC, q_C=2μC and q_D=-5μC are located at the

corners of a square ABCD of side 10cm. What is the force on a charge of 1μC placed at the center of the square?

3]. (a) Two insulated charged copper spheres A and B have their centers separated by a distance of 50cm. What is the mutual force of electrostatic repulsion if the charge on each is 6.5 x 10^{-7} C? The radii of A and B are negligible compared to the distance of separation.

(b)What is the force of repulsion if, each sphere is charged double the above amount, and the distance between them is halved?

4]. Suppose the spheres A and B in the above problem have identical sizes. A third sphere of the same size but uncharged is bought in contact with the first, then brought in contact with the second, and finally removed from both. What is the new force of repulsion between A and B?

5].Twopointcharges+16μCand-9μCareplaced8cmapartinair.Youareaskedto placea+10μCchargeatathirdpositionsuch that the net forceon+10μCcharge is zero. Where will you place the charge? Make necessary calculations.

6].A system has two charges q_A=2.5x10^{-7}C and q_B=-2.5x10^{-7}C locatedatpointsA(0,0,-15cm)and B(0,0,+15cm),respectively. What are the total charge and electric dipole moment of the system?

7]. An electric dipole with dipole moment 4 x 10^{-9} C m is aligned at 30^0 with the directionofauniformelectricfieldofmagnitude 5x10^4NC^{-1}.Calculatethemagnitude of the torque acting on the dipole.

8]. ConsiderauniformelectricfieldE=3x10^3N/C.(a)whatisthefluxofthisfield through a square of 10cm on a side whose plane is parallel tothe yz plane? (b) What is the flux through the same square if the normal to its plane makes a 60^0 angle with the x-axis?

9]. Whatisthenetfluxoftheuniformelectricfieldofaboveproblemthroughacube ofside20cmorientedsothatitsfacesareparalleltothecoordinateplanes?

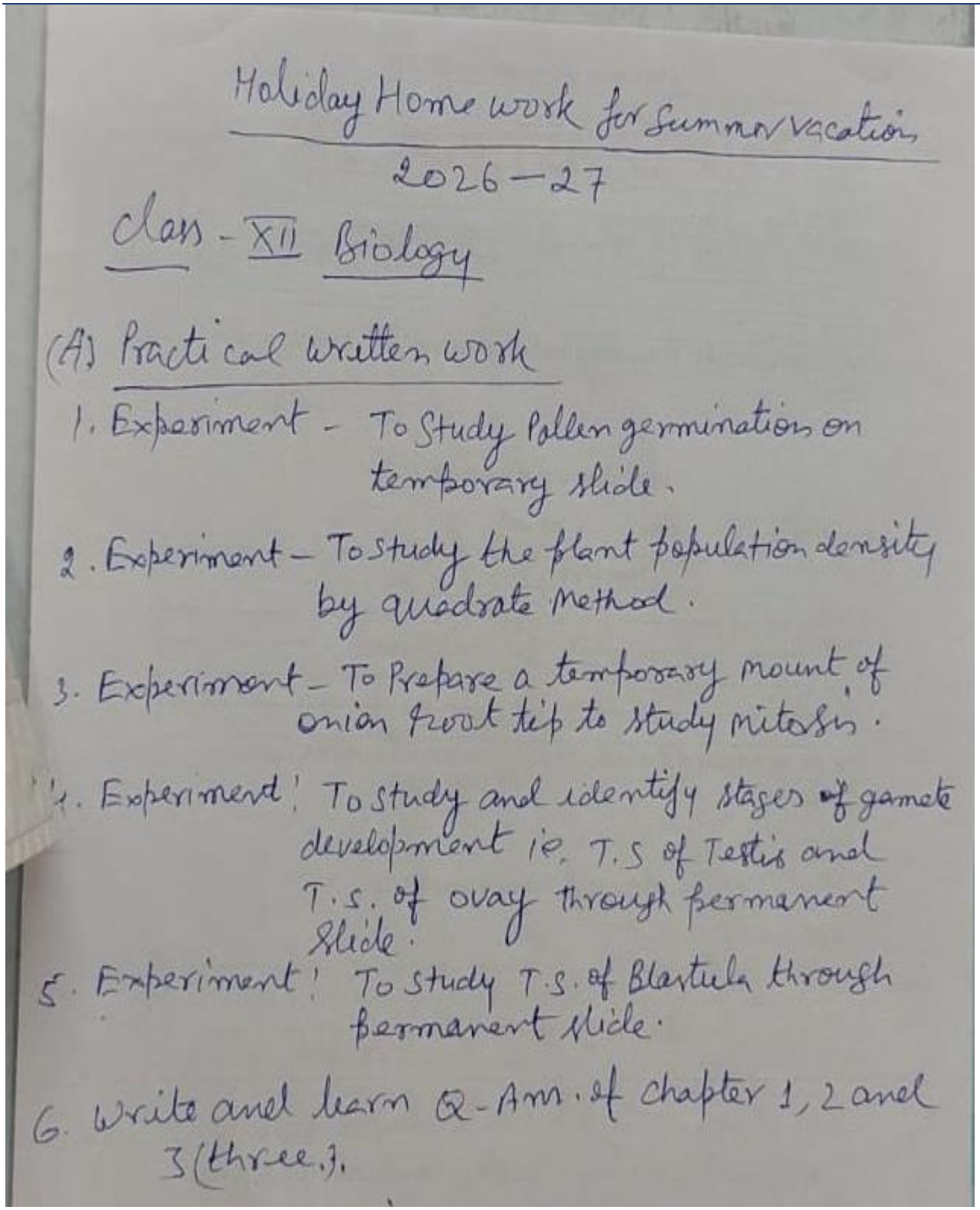
10. A spherical conducting shell of inner radius r_1 and outer radius r_2 has a charge ‘Q’. A charge ‘q’ is placed at the center of the shell.

(a) What is the surface charge density on the (i) inner surface, (ii) outer surface of the shell?

(b) Writetheexpressionfortheelectricfieldatapointx>$r_2$fromthecenterofthe shell.

HOLIDAY HOMEWORK
SUMMER VACATION (08.05.2026 to 16.06.2026)
CLASS – XII

SUBJECT: BIOLOGY



Holiday Home work for Summer Vacation
2026–27

Class - XII Biology

(A) Practical written work

1. Experiment - To Study Pollen germination on temporary slide.
2. Experiment – To study the plant population density by quadrate method.
3. Experiment – To Prepare a temporary mount of onion root tip to study mitosis.
4. Experiment: To study and identify stages of gamete development ie. T.S of Testis and T.S. of ovary through permanent slide.
5. Experiment: To study T.S. of Blastula through permanent slide.
6. Write and learn Q-Ans. of chapter 1, 2 and 3 (three).

HOLIDAY HOMEWORK
SUMMER VACATION (08.05.2026 to 16.06.2026)
CLASS – XII

SUBJECT: CHEMISTRY

- COMPLETE THE WORKSHEET OF CHAPTER 1 & 2 PROVIDED IN THE CLASS.
- COMPLETE YOUR PRACTICAL FILE (WRITING PART).

HOLIDAY HOMEWORK
SUMMER VACATION (08.05.2026 to 16.06.2026)
CLASS – XII

SUBJECT: YOGA

1- Write the introduction of Yoga. Briefly describe about the history of yoga and types of yoga.
2- What our ancient texts(like Patanjali yoga sutra, Shrimad Bhagwat Gita & Upnishad) through about the yoga.
3- Describe the Surya namaskar along with its mantras.
4- Write about the Dhanurasna & Chakrasana along with their benefits and precautions.
5- Describe about the Bhramari & Bhastrika pranayam with their benefits and precautions.
6- Write about the method of Jalneti Kriya, its benefits and precautions.
{Note:- Please use a separate notebook (plain on one side & lined on the other its like a practice notebook) for doing homework.}

PM SHRI KENDRIYA VIDYALAYA MUZAFFARNAGAR
Class XII Economics

Holiday Homework (2026-27)

Section A – Short Answer

1. Distinguish between Microeconomics and Macroeconomics (any three points).

2. Differentiate between consumption goods and capital goods.

3. Distinguish between final goods and intermediate goods.

4. Explain with example how a good can be both final and intermediate.

5. Differentiate between stock and flow variables.

6. Why is national income considered a flow?

7. Explain the relationship between gross investment, net investment, and depreciation.

8. Distinguish between market price and factor cost.

9. Differentiate between Real GDP and Nominal GDP.

10. Why is Real GDP a better measure of economic growth?

11. Explain real flow and money flow in circular flow of income.

12. Explain circular flow of income in a two-sector economy.

13. Explain any three limitations of GDP as a measure of welfare.

14. How do subsidies affect GDP at market price?

15. Explain the concept of GDP deflator.

Section B – Long Answer

16. Explain the circular flow of income in a two-sector economy with diagram.

17. Explain any four limitations of GDP as a measure of welfare.

18. Distinguish between Market Price and Factor Cost with suitable examples.

19. Explain stock and flow variables with examples and diagrams.

20. Explain the concept of final and intermediate goods with suitable examples.

21. Explain the relationship between gross investment, net investment, and depreciation with examples.

22. Differentiate between Real GDP and Nominal GDP with examples.

23. Explain GDP deflator and its significance.

24. Calculate Real GDP: Nominal GDP = ₹8000 crore, Price Index = 160

25. Calculate Net Investment: Gross Investment = ₹1200 crore, Depreciation = ₹300 crore

Section C – Competency-Based Questions

26. "A car manufacturer buys steel to produce cars. The cars are sold to consumers."

(a) Identify intermediate and final goods.

(b) Explain your answer.

27. "In an economy, households supply labour and receive wages, which they spend on goods and services."

(a) Identify the model of circular flow.

(b) What is money flow in this case?

28. "Due to inflation, Nominal GDP increased, but Real GDP remained unchanged."

(a) What does this indicate?

(b) Which GDP is a better measure and why?

29. “A farmer produces wheat worth ₹1 lakh, consumes ₹20,000 himself and sells the rest.”

(a) Identify the final output.

(b) Will self-consumed output be included in GDP? Explain.

30. “Government increases indirect taxes on goods.”

(a) What will be the impact on market price?

(b) How will it affect GDP at market price?

31. Assertion (A): Capital is a stock variable.

Reason (R): It is measured at a point of time.

32. Assertion (A): GDP includes only final goods.

Reason (R): Inclusion of intermediate goods leads to double counting.

33. Assertion (A): Real GDP reflects true economic growth.

Reason (R): It is adjusted for price changes.

34. Assertion (A): Net Investment can never be negative.

Reason (R): Depreciation is always less than Gross Investment.

35. Assertion (A): GDP is a perfect measure of welfare.

Reason (R): It includes non-monetary transactions.

Options for Q31–35:

(a) Both A and R are true and R is correct explanation

(b) Both A and R are true but R is not correct explanation

(c) A is true, R is false

(d) A is false, R is true