KV NTPC KANIHA

AUTUMN BREAK HOMEWORK (2026–27)

CLASS: XII	SUBJECT: BIOLOGY

1. CBSE Sample Question Paper

Solve the CBSE Sample Question Paper (2026–27)(available on CBSE Academic Website also shared by me) in your **Biology homework notebook.**

2. Graded Worksheet and Case-Based Questions

Solve the graded worksheet and case-based questions shared by the me from the chapters "Biotechnology and Its Applications" in your **Biology homework notebook.**

3. In-text Questions and Exercises

Write answers to all in-text questions and exercises from the chapters "Biotechnology and Its Applications" in your **Biology homework notebook.**

4. Short Notes

Complete the short notes on the chapters "Biotechnology and Its Applications" and "Organisms and Populations" in your **Biology classwork notebook.**

5. Investigatory Project

Complete your **Biology investigatory project**, if it has not yet been completed.

NOTE: Complete all pending work and submit it for correction on 26 October 2026.

Practice Paper
(Solved)

Time: 3 Hrs. *Max. Marks: 70*

General instructions

1. Please check that this question paper contains 37 questions.
2. The paper is divided into 5 sections- A, B, C, D, and E.
3. Section A consists of 21 questions (1 to 21). Each question carries 1 Mark.
4. Section B consists of 7 questions (22 to 28). Each question carries 2 Marks.
5. Section C consists of 3 questions (29 to 31). Each question carries 3 Marks.
6. Section D consists of 4 questions (32 to 35). Each question carries 4 Marks.
7. Section E consists of 2 questions (36 to 37). Each question carries 5 Marks.
8. All programming questions are to be answered using the Python Language only.

SECTION A

1. State if the following statement is True or False:

   In a Python program, using a `break` statement inside a nested loop will immediately terminate all enclosing loops.

2. What will be the output produced when the following code snippet is executed?

```
book = "Orange #best 1"
aBook = book.partition(" ")
    print(aBook)
```

   a. `['Orange', ' ', '#best', ' ', '1']`
   b. `['Orange', ' ', '#best 1']`
   c. `('Orange', ' ', '#best', ' ', '1')`
   d. `('Orange', ' ', '#best 1')`

3. What will be the output produced when the following expression is evaluated?

```
not True and False or True
```

   a. `True`
   b. `False`
   c. `NONE`
   d. `NULL`

4. What will be the output produced when the following code snippet is executed?

```
greeting = "NAMASTE DOSTON!"
print(greeting.split("A"))
```

   a. `['N', 'M', 'STE DOSTON!']`
   b. `['NA', 'MASTE DOSTON!']`
   c. `['NAM', 'STE DOSTON!']`
   d. `['N', 'A', 'M', 'A', 'S', 'T', 'E DOSTON!']`

5. What will be the output produced when the following code snippet is executed?

```
man = 'machine'
man = man[-5:0:-2]
    print(man)
```


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6. What will be the output produced when the following code snippet is executed?

```
tuple1 = (1, 2, 4, 3)
tuple2 = (1, 2, 3, 4)
print(tuple1 < tuple2)
```

7. If myDict is a dictionary defined as follows:

```
myDict = {'balloons': 20, 'crown': 1, 'sweets': 100}
```

Which of the following statements will raise an exception?

a. `myDict.get('sweets')`
b. `print(myDict['balloons', 'crown'])`
c. `myDict['balloons'] = 50`
d. `print(str(myDict))`

8. Ramsha is learning Python. She has created a list and now wants to remove all occurrences of a specific element from it. Which of the following options will help her achieve this?

a. Use the `remove()` method inside a loop
b. Use the `delete_all()` method
c. Use the `clear()` method
d. Use the `discard_all()` method

9. Which of the following methods or built-in functions can be used to add an element to a tuple in Python?

a. `insert()`
b. `append()`
c. `extend()`
d. No such method is available

10. Which statement is used to move the file pointer to the beginning of the file? Assume the file object is myFile.

a. `myFile.tell(0)`
b. `myFile.seek(0)`
c. `myFile.begin()`
d. `myFile.close()`

11. State whether the following statement is True or False:

In Python, the `try block` is used to enclose code that may potentially raise an exception.

12. What will be the output produced when the following code snippet is executed?

```
V = 50
def change(N):
    global V
    V, N = N, V
    print(V, N, sep="#", end="@")
change(20)
print(V)
```

a. `20#50@20`
b. `50@20#50`
c. `50#50#50`
d. `20@50#20`

13. In SQL, which clause is used with the `SELECT` statement to sort the retrieved records in ascending order by default?

a. `ORDER BY`
b. `GROUP BY`
c. `SORT BY`
d. `SEQUENCE BY`

14. Which SQL keyword should be used in the following query to display each value in the column `dept_name` only once?

```
SELECT ------ dept_name FROM Company;
```

a. `UNIQUE`
b. `DISTINCT`
c. `NO DUPLICATE`
d. `ONCE`

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15. What is the default format of DATE data type in MYSQL?

a. MM-DD-YY
b. DD-MM-YY
c. YYYY-MM-DD
d. DD-MM-YYYY

16. Which one of the following functions gives the total number of rows in a given table in MYSQL?

a. SUM()
b. COUNT()
c. TOTAL()
d. COUNT(*)

17. Which of the following protocols is used for sending emails over the Internet?

a. SMTP
b. FTP
c. VoIP
d. HTTP

18. Which of the following devices is responsible for converting analog signals to digital signals and digital signals to analog signals?

a. Repeater
b. MODEM
c. Switch
d. Gateway

19. What is the term used to describe the physical or logical arrangement of computers and peripheral devices in a network?

a. Switching
b. Terminology
c. Topology
d. Typology

Questions 20 and 21 are Assertion and Reasoning-based. Choose the correct option from the following:

(A) Both A and R are true, and R is the correct explanation for A

(B) Both A and R are true, and R is not the correct explanation for A

(C) A is True, but R is False

(D) A is false, but R is True

20. Assertion(A): When the arguments used in a function call match the number and order of parameters in the function definition, it is an example of using positional arguments.

Reasoning(R): In a function call, the argument list must begin with *default arguments* followed by positional arguments.

21. Assertion(A): The number of attributes (columns) in a relation is called the *degree* of the relation.

Reasoning(R): In MySQL, the *primary key* attribute must be defined at the time of table creation.

SECTION B

22. Differentiate between Circuit Switching and Packet Switching by stating any two key differences.

23. Give two examples of each of the following types of SQL commands:

(a) DDL Commands
(b) DML Commands

24. Consider the following lists:

```
L1 = [1, 2, 5, 2, 5, 6, 25, 2]
L2 = [10, 20, 30, 40, 50]
```


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Using built-in Python list functions only, write appropriate statements to perform any one task from each part below:

A. (a) Write a statement to count the occurrences of 2 in L1.

OR

(b) Write a statement to sort the elements of list L1 in descending order.

B. (a) Write a statement to put all the elements of list L2 at the end of list L1.

OR

(b) Write a statement to add the element 100 at the end of list L2.

25. Consider the following Python code:

```
import random
myList = [2, 4, 1, 3, 5]
myList = [30, 50, 20, 40, 45]
BEGIN = random.randint(1, 3)
LAST = random.randint(2, 4)
for C in range(BEGIN, LAST + 1):
    print(myList[C], end="#")
```

(a) Predict the output produced when the above code snippet is executed?

(b) What are the maximum possible values that can be assigned to the variables `BEGIN` and `LAST`, respectively?

26. Rakshit created a Python program that is intended to display whether a number is positive or negative. However, the code contains both syntactical and logical errors. Rewrite the code after correcting all the errors and underline the changes made.

```
DEF execmain():
    x = input("Enter a number:")
    if abs(x) = x:
        print("You entered a positive number")
    else:
        x =* -1
        print("Number made positive:", x)
execmain()
```

27. A. Write any two aggregate functions commonly used in SQL.

B. Consider a table named items with the following columns:

`item_no, item_name, quantity, price, discount.`

Write an SQL command to remove the column `discount` from the table `items`.

28. A. Give the full form of the acronym TCP/IP.

OR

B. Write **one advantage** and **one disadvantage** of the **bus topology** in computer networks.

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SECTION C

A. Write a Python function named `countCase(filename)` that takes the name of a text file as an argument and displays the number of uppercase and lowercase characters present in the file.

OR

B. Write a Python function that reads from a text file named `"sentences. txt"` and displays all words that are longer than 6 characters.

Write a Python function named `push(stationaryItemPrice)` where `stationaryItemPrice` is a dictionary containing the names and prices of stationary items in the format:

`{Item:price}`

Assume the stack is implemented using a Python list. The function should push the names of those items into a stack whose price is greater than 75.

For example:

If the dictionary contains the following data:

```
stationaryItemPrice = {"Pen":106, "Pencil":59, "Notebook":80, "Eraser":25}
```

The stack should contain:

```
Notebook
Pen
```

What will be the output produced when the following code snippet is executed?

```
def change (p,q = 10):
    p = p + q
    q = p - q
    print(p, "#", q)
    return (p)
r = 15
s = 10
r = change(r, s)
print(r, "#", s)
s = change(s)
```

OR

What will be the output produced when the following code snippet is executed?

```
def swap(num1 ,num2):
    num1, num2 = num2, num1
    print(num1, "#", num2)
return (num1)
r = 100
s = 200
r = swap(r,s)
print(swap(r, r + s))
```


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SECTION D

32. Consider the table lab given below.

labNo	labName	inCharge	capacity	floor
L001	Chemistry	Smita	20	GROUND
L002	Biology	Kavitha	35	FIRST
L003	Maths	Rahul	41	FIRST
L004	Language	Nikita	38	SECOND
L005	Computer	Shaloo	33	FIRST

A. What will be the output produced when the following SQL queries are executed?

(a) `SELECT MAX(capacity) FROM lab;`

(b) `SELECT labName, inCharge FROM lab WHERE capacity >35;`

(c)
```
SELECT labName, capacity, floor FROM lab WHERE floor
= "FIRST" AND capacity BETWEEN 35 AND 40;
```

(d)
```
SELECT * FROM lab WHERE floor = "FIRST"
ORDER BY labName;
```

OR

B. Write the following queries:

(a) Insert a new row with the following data:

labNo : L006

labName : Physics

inCharge : Raj

capacity: 25

floor: Ground

(b) Increase the capacity of all laboratories located on the second floor by 10 students each.

(c) Add a constraint `PRIMARY KEY` to the column labNo in the table.

(d) Delete the table `lab`.

33. Write a Python program that defines and calls the following two user-defined functions:

(a) `createEmployeeRecords()`: Accepts and stores details of n employees into a CSV file named `Employee.csv`. Each employee record should include: `employeeNumber`, `employeeName`, and `employeeSalary`.

(b) `searchEmployeeByNumber()`: Accepts an employee number as input and displays the corresponding record from the file. If the record is not found, display an appropriate message.

SECTION E

34. Albert has created the following tables in MySQL to manage the inventory and issue records of books in his library. Consider the following two tables: Books and Issued. Answer the questions that follow.

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TABLE: BOOKS

bookId	bookName	author	publisher	price	type	qty
B001	The Tears	William Hopkins	First Publisher	750	Fiction	5
B003	Thunderbolts	Anna Roberts	First Publisher	700	Fiction	2
B004	My First C++	Brain and Brooke	EPB	1000	Text	8
B005	Fast Cook	Lata Kapoor	EPB	250	Culinary	3
B008	My Gita	Devdutt Patnaik	–	450	Spiritual	2

TABLE: ISSUED

bookId	qtyIssued
B003	2
B004	5
B005	2
B008	1

(a) Display the `bookName` and `price` of all books in descending order of their price.

(b) Increase the price of all books published by **'First Publisher'** by 50.

(c) Display the `bookId`, `bookName`, and `qtyIssued` for all books that have been issued.

(d) Display the total price of books grouped by their type.

...ls in a MySQL database called Company.

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36. Shreyas has been assigned to write two user-defined functions in Python to manage customer records using a binary file.

(a) `writeBin()`:

- Accepts `cNo`, `cName`, `qty`, and `price`.
- If `qty <= 0`, display: `Quantity <=0, cannot save`
- Otherwise, calculate `amount = price * qty` and store `[cNo, cName, qty, price, amount]` in `custFile.dat`.



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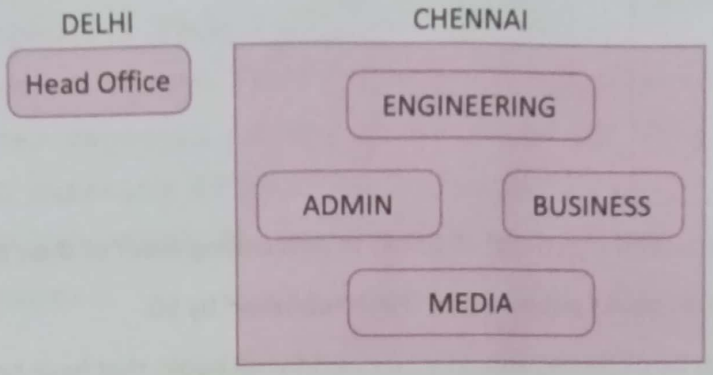
(b) `readBin()`:

- Reads and displays all records from `custFile.dat`.

Help Shreyas complete this task by writing the required functions.

37. **DUSERVICE** is an educational organization planning to establish a campus in Chennai, India, with its head office located in Delhi. The Chennai campus will comprise four main buildings:

ADMIN,
ENGINEERING,
BUSINESS, and
MEDIA



As a network expert, you are required to recommend the most suitable network solutions for the issues outlined in points (i) to (iv), taking into account the distance between the buildings and the other specified parameters.
Shortest distance between various buildings:

ADMIN to ENGINEERING	55 m
ADMIN to BUSINESS	90 m
ADMIN to MEDIA	50 m
ENGINEERING to BUSINESS	55 m
ENGINEERING to MEDIA	50 m
BUSINESS to MEDIA	45 m
DELHI Head office to CHENNAI Campus	2175 km

No. of Computers installed at various buildings are as follows:

ADMIN	110
ENGINEERING	75
BUSINESS	40
MEDIA	12
DELHI Head Office	20

(a) Suggest the most appropriate location for the server within the CHENNAI campus (among the four buildings) to ensure optimal connectivity for the maximum number of computers. Justify your answer.

(b) Propose and illustrate an efficient cable layout to interconnect the various buildings within the CHENNAI campus for effective computer networking.

(c) Which hardware device would you recommend for managing and controlling internet usage across the campus?

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(d) Which internet service would you suggest to enable real-time, face-to-face communication between the Admin Office of the CHENNAI campus and the DELHI Head Office?

(e) (i) Give full form of the abbreviations MAN and WAN.

OR

(ii) Give the full form of abbreviation LAN and PAN.

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Do all miscellaneous questions of chapter 8 and 9.