AUTUMN BREAK HOLIDAY HOME WORK 2026-27

CLASS: XII

ENGLISH CORE (301)

1. PREPARE A PROJECT ON ANY ONE OF THE THEMES OF CHAPTERS (INVESTIGATORY /ART INTEGRATED)
2. PRACTICE ATLEAST 3 PREVIOUS PAPERS OF BOARD EXAMS.
3. WRITE ONE QUESTION FOR THE FOLLOWING TOPICS: NOTICE, INVITATIONS, LETTER TO THE EDITOR, JOB APPLICATION, ARTICLE WRITING, REPORT WRITING.
4. PRACTICE READING PASSAGES.

हिंदी अवकाश गृहकार्य (HW Copy me likhna hai)

1. डेडलाइन से क्या अभिप्राय है? समाचार लेखन में इसका क्या महत्त्व है?
2. रेडियो नाटक की प्रमुख विशेषताओं का वर्णन कीजिए।
3. अप्रत्याशित विषयों पर लेखन करते समय किन बातों का ध्यान रखना चाहिए?
4. विशेष लेखन क्या है? सामान्य लेखन और विशेष लेखन में अंतर स्पष्ट कीजिए।
5. पत्रकारीय लेखन क्या है? इसके विभिन्न रूपों का वर्णन कीजिए।
6. समाचार के छह ककारों का वर्णन करते हुए समाचार लेखन में उनका महत्त्व स्पष्ट कीजिए।
7. फीचर लेखन की प्रमुख विशेषताएँ बताइए।
8. संपादकीय क्या होता है? समाचार-पत्र में इसकी भूमिका स्पष्ट कीजिए।
9. रेडियो और टेलीविजन की भाषा में क्या अंतर है?
10. इंटरनेट और सोशल मीडिया ने जनसंचार के स्वरूप को किस प्रकार बदला है?
11. समाचार लेखन में उल्टा पिरामिड शैली से क्या अभिप्राय है?
12. समाचार और विचारात्मक लेख में क्या अंतर है?
13. पत्रकारिता में पीत पत्रकारिता से क्या अभिप्राय है?
14. रेडियो समाचार लेखन में सरल और बोलचाल की भाषा का प्रयोग क्यों आवश्यक है?
15. कविता, कहानी और नाटक के लेखन में क्या अंतर है?

CHEMISTRY:

1) Biomolecules : text book questions and answers
2) Completion of record from 1 to 15 practicals
3) Investigatory project Submission on 30th October
4) Solve Pre board 1 and 2 papers of last year and solve last year board paper.

PHYSICS:

1) Complete Record using PDF sent and Sample Records provided
2) Complete Investigatory Project on Selected Topic
3) Solve CBSE Sample Paper 2026-27 and Previous year 2025-26 CBSE Question papers and submit on reopening Day

4) Read PHYSICS MLL (Minimum Levels of learning)and practice in HW book and submit on reopening day

BIOLOGY:

1.Comlpete Record and Investigatory Project -Pending work /diagrams if any

3. Refer Text book and CW make concept Maps and Mind maps on Biotechnology principles and processes , Biotechnology Applications, Organisms and population (A/4 Papers) (Revision for Preboard)

4. Practice answers of CBSE sample paper 2026-27 and 2025-26 Board paper on A/4 papers

5.Write 5 each of 5 marks and 3marks Questions from Principles of Inheritance and 5 each of 5 marks and 3marks Questions Molecular Basis of Inheritance given in HW book and submit on reopening day (Revision for PREBOARD)

PM SHRI KENDRIYA VIDYALAYA BOWENPALLY,
(2026-27)

CLASS: XII **AUTUMN BREAK HOLIDAY HOMEWORK MATHS**

1. Find the points on the line $\frac{x+2}{3} = \frac{y+1}{2} = \frac{z-3}{2}$ at a distance of 5 units from the point P(1, 3, 3). (2M)

2. Three vectors $\vec{a}, \vec{b}$ and $\vec{c}$ satisfy the condition $\vec{a} + \vec{b} + \vec{c} = \vec{0}$. Evaluate the quantity $\mu = \vec{a}.\vec{b} + \vec{b}.\vec{c} + \vec{c}.\vec{a}$, if $|\vec{a}| = 3, |\vec{b}| = 4$ and $|\vec{c}| = 2$. (3M)

3. Find the vector and Cartesian equations of the lines which is perpendicular to the lines with equations $\frac{x+2}{1} = \frac{y-3}{2} = \frac{z+1}{4}$ and $\frac{x-1}{2} = \frac{y-2}{3} = \frac{z-3}{4}$ and passes through the point (1, 1, 1). Also find the angle between the given lines. (3M)

4. If $|\vec{a}| = 2, |\vec{b}| = 7$ and $\vec{a} \times \vec{b} = -3\hat{\imath} + \hat{\jmath} + 2\hat{k}$, find the angle between $\vec{a}$ and $\vec{b}$. (2M)

5. Find the co-ordinates of the foot of the perpendicular drawn from the point $A(-1, 8, 4)$ to the line joining points $B(0, -1, 3)$ and $C(2, -3, -1)$. Hence find the image of the point A in the line BC. (5M)

6. The equation of a line is $5x - 3 = 15y + 7 = 3 - 10z$ Write the direction cosines of the line (2M)

7. Find the values of p, so that the lines $l_1: \frac{1-x}{3} = \frac{7y-14}{p} = \frac{z-3}{2}$ and $l_2: \frac{7-7x}{3p} = \frac{y-5}{1} = \frac{6-z}{5}$

are perpendicular to each other. Also, find the equation of a line passing through a point $(3, 2, -4)$ and parallel to line l_1. (5M)

8. Show that the points A, B, C with position vectors $2\hat{\imath}$-$\hat{\jmath}$+$\hat{k}$, $\hat{\imath}$-3$\hat{\jmath}$-5$\hat{k}$ and 3$\hat{\imath}$-4$\hat{\jmath}$-4$\hat{k}$ respectively, are the vertices of a right-angled triangle. Hence find the area of the triangle (3M)

9. If $\vec{a} = 4\hat{i} + 5\hat{j} - \hat{k},\ \vec{b} = -\hat{i} + 4\hat{j} - 5\hat{k}$, then find another vector $\vec{d}$ which is perpendicular to both $\vec{a}$ and $\vec{b}$,and such that $\vec{c} \cdot \vec{d} = 21$ where $\vec{c} = 3\hat{i} + \hat{j} - \hat{k}$. (3M)

10. Find the shortest distance between the Lines:

$\vec{r} = (3\hat{\imath} + 2\hat{\jmath} - 4\hat{k}) + \lambda(\hat{\imath} + 2\hat{\jmath} + 2\hat{k})$ and $\vec{r} = (5\hat{\imath} - \hat{\jmath}) + \mu(3\hat{\imath} + 2\hat{\jmath} + 6\hat{k})$. Also, find whether the lines are intersecting or not (5M).

11. Find a vector of magnitude 6, perpendicular to each of the vectors $\vec{a} + \vec{b}$ and $\vec{a} - \vec{b}$, where $\vec{a} = i + j + k$ and $\vec{b} = i + 2j + 3k$.

12. Find the area of a parallelogram whose adjacent sides are $2\hat{\imath}$-4$\hat{\jmath}$+5$\hat{k}$ and 3$\hat{\imath}$-6$\hat{\jmath}$+2$\hat{k}$..

13. Find a vector in the direction of vector $\vec{a} = \hat{\imath} - 2\hat{\jmath}$ that has magnitude 7 units

14. Find the projection of the vector $\hat{\imath} + 3\hat{\jmath} + 7\hat{k}$ on the vector $7\hat{\imath} - \hat{\jmath} + 8\hat{k}$.

15. If $\vec{a} = 4\hat{i} + 5\hat{j} - \hat{k},\ \vec{b} = -\hat{i} + 4\hat{j} - 5\hat{k}$, then find another vector $\vec{d}$ which is perpendicular to both $\vec{a}$ and $\vec{b}$,and such that $\vec{c} \cdot \vec{d} = 21$ where. $\vec{c} = 3\hat{i} + \hat{j} - \hat{k}$

16. $If\ A = \begin{pmatrix} 2 & 0 & 1 \\ 2 & 1 & 3 \\ 1 & -1 & 0 \end{pmatrix}$,then find a matrix X such that A^2-5A+4I+X=0.

17. Solve the system of equations $\frac{2}{x}+\frac{3}{y}+\frac{10}{z}=4\ ;\frac{4}{x}-\frac{6}{y}+\frac{5}{z}=1;\ \frac{6}{x}+\frac{9}{y}-\frac{20}{z}=2$

18.. For two matrices $A=\begin{bmatrix} 3 & -6 & -1 \\ 2 & -5 & -1 \\ -2 & 4 & 1 \end{bmatrix}$ and $B=\begin{bmatrix} 1 & -2 & -1 \\ 0 & -1 & -1 \\ 2 & 0 & 3 \end{bmatrix}$, find the product AB and hence solve the system of equations:$3x-6y-z=3,\ 2x-5y-z+2=0$ and $-2x+4y+z=5$

19. If $A=\begin{bmatrix} 1 & 1 & 1 \\ 0 & 1 & 3 \\ 1 & -2 & 1 \end{bmatrix}$ then find A^{-1} and hence solve the system of system of linear equations: $x+y+z=6, y+3z=7\ and\ x-2y+z=0$

20. If A = $\begin{bmatrix} -1 & a & 2 \\ 1 & 2 & x \\ 3 & 1 & 1 \end{bmatrix}$ and A^{-1} = = $\begin{bmatrix} 1 & -1 & 1 \\ -8 & 7 & -5 \\ b & y & 3 \end{bmatrix}$, find the value of (a+x) – (b+y)

21. Let N be the set of natural numbers and R be the relation on $N \times N$ defined by $(a,b)\ R\ (c,d)$ iff $ad=bc$ for all $a,b,c,d \in N$. Show that R is an equivalence relation.

22. Let $f: R-\left\{-\frac{4}{3}\right\} \rightarrow R$ be a function defined as $(x)=\frac{4x}{3x+4}$. Show that f is a one one function. Also check whether f is an onto function or not

23. A function f: [0, ∞) → [-5, ∞) be defined by $f(x)=3x^2+9x-5$

Prove that the function is a one-one and on-to function.

24. 1. Minimize Z = 5x+10y subject to the constraints; $x+2y\leq 120;\ x+y\geq 6\ ;\ x-2y\geq 0\ ; x,y\geq 0$.

25. $Maximize\ Z=3x+9y$ Subject to constraints $x+3y\leq 60, x+y\geq 10, x\leq y, x,y\geq 0$
Solve the above L.P.P graphically.

26. Solve the following linear programming problem graphically: Maximise z = 600x+400y, Subject to constraints: x+2y≤ 12, 2x+y ≤ 12, x+1.25y ≥5, x ≥0 ,y ≥ 0

27. The corner points of the feasible region determined by the system of linear inequalities are (0,0), (4,0), (2,4), and (0,5). If the maximum value of Z = ax+ by, where a, b > 0 occurs at both (2,4) and (4,0), then

a) a= 2b b) 2a =b c) a = b d) 3a = b

28. Which of the following points is not in the feasible region of the constraints: $x+2y\leq 8, 3x+2y\leq 12, x\geq 0, y\geq 0$.
(A) $(0,-1)$ (B) (0 ,1) (C) (2 , 2) (D) (4 , 0)

29. Integrate $e^x\left(\frac{1+\sin x}{1+\cos x}\right)$ with respect to x

30. Evaluate: $I = \int \frac{x\,dx}{(x^2 + 1)(x - 1)}$

31. Evaluate $\int_1^4 |x-1| + |x-2| + |x-3|$ dx

32. Evaluate: $\int_0^{\pi} \frac{x \tan x}{\sec x + \tan x} dx$

33. Solve the differential equations:

34. Find the particular solution of the differential equation $\frac{dy}{dx} = 1 + x + y + xy$, given that $y = 0 \;\; when \;\; x = 1.$

35. $\left\{x \sin^2\left(\frac{y}{x}\right) - y\right\} dx + x\,dy = 0 \quad if\ y = \frac{\pi}{4}, \;\; when \;\; x = 1.$

36. Solve the differential equation: $x\frac{dy}{dx} = y - x \tan\left(\frac{y}{x}\right).$

37. Find the area of the region in the first quadrant enclosed by the x-axis, the line y=x and the circle $x^2 + y^2 = 32.$

38. Find the area of the region bounded by the curve $x^2 = 4y$ and the line $x = 4y - 2.$

39. Find the area of the region bounded by the ellipse $\frac{x^2}{25} + \frac{y^2}{9} = 1.$

40.

Find the image A' of the point A(1, 6, 3) in the line $\frac{x}{1} = \frac{y-1}{2} = \frac{z-2}{3}$. Also, find the equation of the line joining A and A'.

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Find a point P on the line $\frac{x+5}{1} = \frac{y+3}{4} = \frac{z-6}{-9}$ such that its distance from point Q(2, 4, −1) is 7 units. Also, find the equation of line joining P and Q.

AUTUMN BREAK HOLIDAYS HOMEWORK | SESSION 2026-27

Subject: Computer Science (Code 083) | Class XII

Name		Class / Section	XII -
Roll No.		Date of Submission	

Chapters covered: (1) Python Revision Tour (2) Functions (3) Exception Handling (4) File Handling (Text, Binary, CSV) (5) Stack (6) Computer Networks

Maximum Marks: 115

General Instructions:

1. Attempt all 50 questions in a neat CS Notebook. Write the question number clearly.
2. Section A has 20 MCQs and Section B has 5 Assertion-Reasoning questions (1 mark each).
3. Section C has 10 competency based questions (Q1-Q5 carry 2 marks, Q6-Q10 carry 3 marks).
4. Section D has 10 case based questions (4 marks each, with 3 sub-parts). Section E has 5 long answer questions (5 marks each).
5. Write all Python programs by hand with correct indentation, and test them on your computer. Copied answers will not be accepted.

Sec.	Type of Questions	Marks Each	Total Marks
A	Multiple Choice Questions (20)	1	20
B	Assertion and Reasoning (5)	1	5
C	Competency Based Questions (10)	2 / 3	25
D	Case Based Questions (10)	4	40
E	Long Answer Questions (5)	5	25
	Total		**115**

SECTION A: MULTIPLE CHOICE QUESTIONS [20 x 1 = 20 Marks]

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

(a) list
(b) dictionary
(c) tuple
(d) set

Q2. What is the output of print(2 + 3 * 2 ** 2)?

(a) 50
(b) 14
(c) 20
(d) 64

Q3. If D = {1: 'A', 2: 'B'}, what will print(D.get(3, 'NA')) display?

(a) None
(b) NA
(c) KeyError
(d) 2

Q4. If S = "Computer", what will print(S[1:6:2]) display?

(a) omu
(b) opt
(c) mpt
(d) cmu

Q5. What does a Python function return if it has no return statement?

(a) 0
(b) None
(c) An empty string
(d) It raises an error

Q6. What will be the output of the following code?

```
def fun(x, y=5):
    x = x + y
    return x
print(fun(2), fun(2, 3))
```

(a) 7 5
(b) 7 7
(c) 5 5
(d) Error

Q7. What will be the output of the following code?

```
x = 10
def f():
    global x
    x = x + 5
f()
print(x)
```

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

Q8. For the function definition def show(a, b=1, c=2):, which of the following calls is invalid?

(a) show(5)
(b) show(5, c=3)
(c) show(b=2)
(d) show(1, 2, 3)

Q9. Which block of a try-except structure is executed whether an exception occurs or not?

(a) try
(b) except
(c) else
(d) finally

Q10. What will be the output of the following code?

```
try:
    print(10 / 0)
except ZeroDivisionError:
    print("A")
except:
    print("B")
finally:
    print("C")
```

(a) A
(b) A and then C
(c) B and then C
(d) C

Q11. Which file mode opens an existing binary file for both reading and writing, with the file pointer at the beginning?

(a) wb
(b) rb+
(c) ab
(d) r+

Q12. Which function of the pickle module is used to write an object into a binary file?

(a) dump()
(b) load()
(c) write()
(d) store()

Q13. Which file method returns the current position of the file pointer?

(a) seek()
(b) tell()
(c) read()
(d) flush()

Q14. Which method of a csv writer object writes multiple rows to a CSV file at once?

(a) writerow()
(b) writerows()
(c) write()
(d) writelines()

Q15. Which principle does a stack follow?

(a) First In First Out
(b) Last In First Out
(c) Random order
(d) Priority order

Q16. If S = [10, 20, 30], what is S after S.append(40), S.pop(), S.pop()?

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

Q17. What is the condition called when pop() is attempted on an empty stack?

(a) Overflow

(b) Underflow
(c) Deadlock
(d) Traversal

Q18. Which device connects two different networks and forwards data packets using IP addresses?

(a) Hub
(b) Repeater
(c) Router
(d) Modem

Q19. In which topology are all devices connected to a central switch or hub?

(a) Bus
(b) Ring
(c) Star
(d) Mesh

Q20. Which protocol is used for secure browsing of websites?

(a) HTTP
(b) HTTPS
(c) FTP
(d) SMTP

SECTION B: ASSERTION AND REASONING [5 x 1 = 5 Marks]

Directions: In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R). 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): A Python function can return multiple values.
Reason (R): Python packs multiple returned values into a tuple.

Q2. Assertion (A): An except block without any exception name can catch only the ZeroDivisionError.
Reason (R): ZeroDivisionError is raised when a number is divided by zero.

Q3. Assertion (A): Binary files store data in the form of bytes (0s and 1s).
Reason (R): The pickle module is used to read and write text files.

Q4. Assertion (A): A stack follows the LIFO (Last In First Out) principle.
Reason (R): In a Python list used as a stack, the append() method is used to push an element.

Q5. Assertion (A): A router is used to connect two different networks.
Reason (R): A router forwards data packets using their IP addresses.

SECTION C: COMPETENCY BASED QUESTIONS [5 x 2 + 5 x 3 = 25 Marks]

Q1. The following code has some errors. Rewrite the correct code and underline each correction. **[2]**

```
Def calc(n):
    s = 0
    for i in range(1, n+1)
        S += i
    return s
print(calc(5)
```

Q2. Write the output of the following code and give a one-line reason. **[2]**

```
def change(L):
    L.append(10)
    L = [1, 2]
    print(L)
A = [5]
change(A)
print(A)
```

Q3. Write the output of the following code when the user enters (i) 0 and (ii) 4. **[2]**

```
try:
    n = int(input("Enter: "))
    print(100 // n)
except ValueError:
    print("Invalid")
except ZeroDivisionError:
    print("Zero")
else:
    print("Done")
```

Q4. Write the output of the following code. Also state which element is at the top of the stack at the end. **[2]**

```
S = ['A', 'B']
S.append('C')
S.append('D')
S.pop()
S.append('E')
print(S, len(S))
```

Q5. Explain with an example how DNS helps a user who types www.example.com in the browser. Also name the device that connects a school LAN to the Internet. **[2]**

Q6. Write a Python function countVowels(S) that accepts a string S and returns the number of vowels (both uppercase and lowercase) present in it. **[3]**

Q7. Write a Python function disp() that reads the text file "diary.txt" and displays all lines that start with the letter 'T' or 't', followed by the count of such lines. **[3]**

Q8. A binary file "student.dat" stores records as lists [rollno, name, marks] using pickle. Write a function count75() to count and display the number of students who have scored more than 75 marks. **[3]**

Q9. A CSV file "emp.csv" (without a header row) stores records in the form [empid, name, salary]. Write a Python program to read the file and display only the records of employees whose salary is more than 50000. **[3]**

Q10. Write Python functions push(stk, item), pop(stk) and display(stk) for a stack implemented as a list. The pop function should return "Underflow" if the stack is empty, and display should print the elements from top to bottom. **[1 + 1 + 1]**

SECTION D: CASE BASED QUESTIONS [10 x 4 = 40 Marks]

Q1. Case Study 1: Campus Network

A Kendriya Vidyalaya wants to connect its Admin, Science and Library buildings (all within a 300 m campus) in a network and also provide Internet access to all computers.

(a) Name the type of network (LAN, MAN or WAN) the school will set up. [1]

(b) Name the most suitable cable for connecting the buildings placed 300 m apart. [1]

(c) Name the device to be placed in each building to connect its computers, and the device used to connect the school network to the Internet. [2]

Q2. Case Study 2: Web and Email

Aarti opens the website www.kvsangathan.nic.in in her browser and then sends an email to her teacher.

(a) In the given URL, identify the domain name and the top-level domain. [1]

(b) Name the protocol used to send an email from the sender's mail client to the mail server. [1]

(c) Differentiate between a web browser and a web server. [2]

Q3. Case Study 3: Parameters and Global Variable

Study the following program.

```
def calc(a, b=10):
    global total
    total = a + b
    return a * b
total = 0
r = calc(5)
print(r, total)
r = calc(5, 2)
print(r, total)
```

(a) Write the output of the first print statement. [1]

(b) Name the type of parameter b and state its use. [1]

(c) Write the output of the second print statement. What would the second print display if the line 'global total' is removed from the function? [2]

Q4. Case Study 4: Passing a List to a Function

Rohan wrote the following function to process a list.

```
def modify(L, n):
    for i in range(len(L)):
        if L[i] % n == 0:
            L[i] = L[i] // n
nums = [10, 15, 20, 7, 30]
modify(nums, 5)
print(nums)
```

(a) Write the output of the program. [1]

(b) What will print(modify(nums, 5)) display and why? [1]

(c) Rewrite the function modify() so that it returns a new list and keeps the original list unchanged. [2]

Q5. Case Study 5: Banking Program

A student wrote this program for withdrawing money from an account with a balance of Rs. 5000.

```
def withdraw(bal, amt):
    if amt > bal:
        raise ValueError("Insufficient balance")
    return bal - amt
try:
    b = withdraw(5000, int(input("Amount: ")))
    print("Balance", b)
except ValueError as e:
    print("Error:", e)
finally:
    print("Thank you")
```

(a) Write the output when the user enters 2000. [1]

(b) Write the output when the user enters 6000. [1]

(c) What will be displayed when the user enters abc? Why is 'Thank you' printed in every case? [2]

Q6. Case Study 6: Reading a Text File

The text file "notes.txt" contains exactly three lines: Python is easy / Files store data / Stack is LIFO. Study the code.

```
f = open("notes.txt")
a = f.readline().strip()
b = f.read(5)
f.seek(0)
c = f.read(6)
f.seek(0)
d = len(f.readlines())
f.close()
print(a)
print(b)
print(c)
print(d)
```

(a) Write the values displayed for a and b. [1]

(b) Write the values displayed for c and d. [1]

(c) Differentiate between read() and readlines(). What is the purpose of seek(0)? [2]

Q7. Case Study 7: Binary File of Items

A shop stores item records in a binary file using the pickle module.

```
import pickle
f = open("items.dat", "wb")
pickle.dump([101, "Pen", 10], f)
pickle.dump([102, "Book", 50], f)
f.close()
f = open("items.dat", "rb")
a = pickle.load(f)
b = pickle.load(f)
f.close()
print(a[1], b[2])
```

(a) Write the output of the print statement. [1]

(b) Which exception is raised if pickle.load(f) is called a third time? [1]

(c) Write the file mode and the statements needed to add the record [103, "Eraser", 5] without deleting existing records. [2]

Q8. Case Study 8: Marks in a CSV File

A teacher creates a CSV file with the following code.

```
import csv
f = open("marks.csv", "w", newline="")
w = csv.writer(f)
w.writerow(["Name", "Marks"])
w.writerows([["Asha", 85], ["Ravi", 72]])
f.close()
```

(a) How many lines (rows) will the file marks.csv contain? [1]

(b) What is the purpose of newline="" in open()? [1]

(c) Write Python statements to read marks.csv and display every row. [2]

Q9. Case Study 9: Undo Feature

A drawing game keeps its moves in a stack so that the player can undo them.

```
undo = []
def move(m):
    undo.append(m)
def undoMove():
    if undo == []:
        return "Nothing to undo"
    return undo.pop()
move("Up")
move("Left")
move("Down")
print(undoMove())
print(undoMove())
move("Right")
print(undo)
```

(a) Write the output of the two print(undoMove()) statements. [1]

(b) Write the output of print(undo). [1]

(c) Name the stack operations performed by move() and undoMove(). Why is a stack the right data structure for an undo feature? [2]

Q10. Case Study 10: Reversing with a Stack

Meena uses a stack to reverse a string.

```
def rev(s):
    st = []
    for ch in s:
        st.append(ch)
    r = ""
    while st:
        r += st.pop()
    return r
print(rev("KVS"))
print(rev("level") == "level")
```

(a) Write the output of print(rev("KVS")). [1]

(b) Write the output of the second print statement and state what it checks. [1]

(c) Name the property of the stack used in this program, and give two real-life applications of a stack. [2]

SECTION E: LONG ANSWER QUESTIONS [5 x 5 = 25 Marks]

Q1. A binary file STUDENT.DAT stores records as lists in the form [rollno, name, marks]. Write Python functions for the following: **[2 + 3]**

(i) AddStudent() to accept the details of a student from the user and append the record to the file. [2]

(ii) TopScorers() to display all the records of students who have scored more than 90 marks, and finally display their count. [3]

Q2. A CSV file PRODUCT.CSV stores the details of products (Pid, Pname, Price). Write Python functions for the following: **[2 + 3]**

(i) Write() to create the file with the header row Pid, Pname, Price and then enter 3 product records accepted from the user. [2]

(ii) Search() to accept a product id from the user and display its record. If the id is not found, display "Not found". [3]

Q3. A dictionary D stores the names of students as keys and their marks as values, for example D = {"Asha": 82, "Ravi": 65, "Neha": 91, "Karan": 58, "Meena": 76}. Write the following functions: **[2 + 2 + 1]**

(i) PushHigh(St, D) to push the names of students who have scored more than 75 marks into the stack St. [2]

(ii) PopAll(St) to pop and display all the names from the stack, and display "Stack is empty" at the end. [2]

(iii) Write the output produced when both functions are called for the dictionary given above, starting with an empty stack. [1]

Q4. Brightstar Institute has four blocks: Admin, Engg, Arts and Hostel. The distances between the blocks and the number of computers in each block are given below. **[1 x 5]**

From	To	Distance
Admin	Engg	55 m
Engg	Arts	130 m
Arts	Hostel	80 m

Admin	Hostel	90 m

Block	Computers
Admin	40
Engg	120
Arts	30
Hostel	50

(i) Suggest the most suitable block to place the main server with a reason. [1]

(ii) Suggest a cable layout among the four blocks that keeps the total cable length minimum. [1]

(iii) Name the device to be placed in every block to connect its computers. [1]

(iv) Is a repeater required in your layout? Justify (twisted pair cable works up to 100 m). [1]

(v) The institute opens a branch in another city. Name the type of network that will connect the two campuses. [1]

Q5. Write a Python function Stats(L) that accepts a list of numbers and returns the smallest value, the largest value and the average as a tuple. If the list is empty, the function should handle the exception, display "List is empty" and return None. Then: **[3 + 1 + 1]**

(i) Write the function Stats(L). [3]

(ii) Call it with [12, 45, 7, 30], store the result in three variables and print them. State the output. [1]

(iii) What is the data type of the value returned by Stats()? [1]

***** Happy Autumn Break! Practise, Code and Enjoy *****