SET - 1

Roll No. | | | | | | |

Candidates must write the Set No on the title page of the answer book.

SAHODAYA PRE BOARD EXAMINATION – 2024-25

- Please check that this question paper contains 11 printed pages.
- Set number given on the right-hand side of the question paper should be written on the title page of the answer book by the candidate.
- Check that this question paper contains 37 questions.
- Write down the Serial Number of the question in the left side of the margin before attempting it.
- 15 minutes time has been allotted to read this question paper. The question paper will be distributed 15 minutes prior to the commencement of the examination. The students will read the question paper only and will not write any answer on the answer script during the period. Students should not write anything in the question paper.

CLASS – XII

SUBJECT : COMPUTER SCIENCE (083)

Time Allowed: 3 hours **Maximum Marks: 70**

General Instructions:

- This question paper contains 37 questions.
- All questions are compulsory. However, internal choices have been provided in some questions. Attempt only one of the choices in such questions.
- The paper is divided into 5 Sections- A, B, C, D and E.
- Section A, consists of 21 questions (1 to 21). Each question carries 1 Mark.
- Section B, consists of 7 questions (22 to 28). Each question carries 2 Marks.
- Section C, consists of 3 questions (29 to 31). Each question carries 3 Marks.
- Section D, consists of 4 questions (32 to 35). Each question carries 4 Marks.
- Section E, consists of 2 questions (36 to 37). Each question carries 5 Marks.
- All programming questions are to be answered using Python Language only.
- In case of MCQ, text of the correct answer should also be written.

Q. No.	SECTION – A (21 × 1 = 21 Marks)	Marks
1.	State True/False : "When different types of data is used in an expression the interpreter converts the resultant type of it to higher type explicitly."	**[1]**
2.	What will be the output of the following command? print('#'.join(['blue', 'green', 'red'])) (A) blue#green#red (B) ['blue', '#', 'green', '#', 'red'] (C) ['blue#green#red'] (D) Error	**[1]**

3.	print(not False or True or False and False or True) (A) True (B) False (C) Error (D) None of these	**[1]**
4.	What is the output of the expression? Str= "CBSE Examination 2025" print(Str.partition("E")) (A) ("CBS", "E", " Examination 2025") (B) ["CBS", "E", " Examination 2025"] (C) ("CBS", " xamination 2025") (D) Error	**[1]**
5.	Select the correct output of the following string operation: S = "Cloud@Computing#" print(S[3:-3:2]) (A) 'ntpo@' (B) 'ntpo@u' (C) 'u@opt' (D) 'u@optn'	**[1]**
6.	What is the output of the following code: T=(10,20,'book',30,9.5,'item',[12,13],(3,4)) res1=T[6].copy() res2=T[7] res1[0]*=2 print(T[6]+list(res2)) (A) [24, 13, 3, 4] (B) [12, 13, 3, 4] (C) 12, 13, 3, 4 (D) Error in the code fragment	**[1]**
7.	Which of the following statement will generate any exception upon execution? (A) {28:'Feb',30:'Apr'}.get(30) (B) {28:'Feb',30:'Apr'}.update({31:'Jan'}) (C) {28:'Feb',30:'Apr'}+{31:'Jan'} (D) {28:'Feb',30:'Apr'}.keys()	**[1]**
8.	What does the list.index(y) method do in Python, if y is not present the list? (A) It will give "TypeError". (B) It will give "IndexError". (C) It will give "ValueError". (D) It will return the index number of y.	**[1]**
9.	A table which has one Primary Key, three Alternate Keys and 2 Foreign Keys. How many Candidate Keys will this table have? (A) 4 (B) 6 (C) 5 (D) 3	**[1]**

10.	Write appropriate statement for the following missing statement to get the output as:- **'consists of going from failure to failure without loss of enthusiasm'** f=open('Grocery.txt','w+') f.write('Success consists of going from failure to failure without loss of enthusiasm') _____ print(f.read()) f.close() (A) f.seek(8,2-2) (B) f.seek(8,0) (C) f.seek(8) (D) All of the above.	**[1]**
11.	State whether the following statement is True or False: "While writing a program all exceptions must be handled as the system cannot handle Exceptions on it's own."	**[1]**

12.	What will be the output of the following code?
	g=0
	def fun1 (x, y):
	global g
	g = x+y
	return g
	def fun2 (m, n):
	global g
	g = m - n
	return g
	x= fun1 (2,3)
	fun2(x, 7)
	print(g)
	(A) 2 (B) –2 (C) 12 (D) 5
		[1]

13.	Which command of SQL is used to assign constraints to an existing relation?	**[1]**
14.	What will be the output of the query? SELECT * FROM EMPLOYEE WHERE EMP_NAME LIKE '_O_ _ _' ; (A) Details of all employees whose names contains 'O' in the second place. (B) Details of all employees whose names contains 'O'. (C) Details of all employees whose names contains 'O' in the second place and is of any number of characters. (D) Details of all employees whose names contains 'O' in the second place and is of 5 characters.	**[1]**

15.	Which data type is used for dynamic allocation of memory in SQL? (A) CHAR (B) VARCHAR (C) DATE (D) INT	**[1]**
16.	What values does the aggregate function count( ) ignore? (A) integers (B) characters (C) repetitive values (D) NULL values	**[1]**
17.	Which is a standard protocol used for accessing e-mail from local server? (A) FTP (B) HTTP (C) IMAP (D) SMTP	**[1]**
18.	Which out of the following Network devices regenerates and retransmits the whole signal? (A) Modem (B) Hub (C) Repeater (D) Bridge	**[1]**
19.	In which switching technique, first the complete physical connection between two computers is established and then data are transmitted from the source computer to the destination computer?	**[1]**
	Q.20 and Q.21 are Assertion (A) and Reason (R) based questions. Mark the correct choice as given below: (A) Both A and R are true and R is the correct explanation of A. (B) Both A and R are true and R is not the correct explanation of A. (C) A is true but R is false. (D) A is false but R is true.	
20.	**Assertion (A) :** To use function from a particular module, we need to import the module. **Reason (R) :** import statement can be written anywhere in the program, before using a function from that module	**[1]**
21.	**Assertion (A)** : The HAVING clause of MySQL can work only with GROUP BY. **Reason (R)** : The HAVING clause is used to filter groups formed with GROUP BY clause.	**[1]**
Q.No.	**SECTION – B (7 × 2 = 14 Marks)**	**Marks**
22.	What is the difference between the formal parameter and actual parameter? Explain it with suitable examples.	**[2]**
23.	In the following expression: **2+3>=5 and 6** I) Name the different types of python operators used in the above expression. II) Arrange the operators given in the expression as per their precedence order (highest to lowest).	**[2]**

24.	If L1=[23,65,78,12,65,49,65,10,20,65] and L2=[1,2,3,4,5,6,2,9,8], then *(Answer using built-in functions only)* (I) (A) Write a statement to add 45 at the end of list L1. **OR** (B) Write a statement to add 15 in the index number 5 of the list L2. (II) (A) Write a statement to delete the last element from the list L2. **OR** (B) Write a statement to find the maximum value from the list L1.	**[2]**
25.	What possible output(s) are excepted to be displayed on screen at the time of execution of the program from the following code? Also, specify the maximum values that can be assigned to each of the variables FROM and TO. import random AR=[20,30,40,50,60,70] FROM= random.randint(1,3) TO = random.randint(2,4) for k in range (FROM, TO+1): print(AR[k], end= '#') (A) 10#40#70# (B) 30#40#50# (C) 50#60#70# (D) 40#50#70#	**[2]**

26.	The following program reads an integer N from the user and displays the sum of the numbers from N to (2 * N) if N is positive. If N is a negative number, then it's the sum of the numbers from (2 * N) to N. The starting and ending points are included in the sum. However, there are syntax and logical errors in the code. Rewrite the following code in Python after removing all the error(s). Underline each correction done in the code.
	n = input("Enter N: ")
	sum = 1
	if n < 0:
	for i in range(2 * n, n):
	sum += i
	else:
	for i in range(n, 2 * n+1):
	sum += I
	print("Sum =", sum)
		[2]

27.	(I) (A) What constraint should be applied on a Table column, which will limit the values that can be inserted into that particular column? **OR** (B) What constraint should be applied on a Table column, which will ensure that no two rows have the same value for that particular column? (II) (A) Write an SQL statement to create a **PRIMARY KEY** constraint on the "**P_Id**" column of table **Persons**, when the table is already created. **OR** (B) What will be the impact on table **Persons** after execution of the following query? ALTER TABLE Persons DROP PRIMARY KEY;	**[2]**
28.	(A) List two differences between circuit switching and packet switching. **OR** (B) Expand the term ISP. Name any two ISPs.	**[2]**
Q.No.	**SECTION – C (3 × 3 = 9 Marks)**	**Marks**
29.	Write a function **RevText()** to read a text file **"Story.txt"** and print the word(s) starting with 'I' in reverse order, rest of the words will be printed as it is. Example: If content of the text file is: INDIA IS MY COUNTRY Output will be: AIDNI SI MY COUNTRY **OR** Write a function **countmy( )** in Python to read the text file **"Data.txt"** and count the number of times **"my"** or **"My"** occurs in the file. For example if the file **"Data.txt"** contains: "This is my website. I have displayed my preferences in the CHOICE section." The **countmy( )** function should display the output as: my occurs 2 times.	**[3]**
30.	(A) You have a stack named **ItemStack** that contains records of some items. Each item record is represented as a list containing **Item_Name**, **Quantity**, and **Price**. Write the following user-defined functions in Python to perform the specified operations on the stack **ItemStack**: (I) **push_item(ItemStack, new_item)**: This function takes the stack ItemStack and a new item record new_item as arguments and pushes the new item record onto the stack.	**[3]**

	(II) **pop_item(ItemStack)**: This function pops the topmost item record from the stack and returns it. If the stack is already empty, the function should display **"Underflow"**. (III) **peep(ItemStack)**: This function displays the topmost element of the stack without deleting it. If the stack is empty, the function should display '**None**'. **OR** (B) Write the definition of a user-defined function **'push_nums(N)'** which accepts a list of integers in a parameter **'N'** and pushes all those integers which are positive even from the list **'N'** into a Stack named **'Numbers'**. Write function **pop_num()** to pop the topmost number from the stack and returns it. If the stack is already empty, the function should display **"Empty"**. Write function **disp_num()** to display all element of the stack without deleting them. If the stack is empty, the function should display **'None'**.	

31.	Predict the output of the following: -
	`def change():`
	`  Text1="CBSE 2024"`
	`  Text2="#"`
	`  I=0`
	`  while I<len(Text1) :`
	`  if Text1[I]>="0" and Text1[I]<="9":`
	`  Val = int(Text1[I])`
	`  Val = Val + 1`
	`  Text2=Text2 + str(Val)`
	`  elif Text1[I]>="A" and Text1[I] <="Z":`
	`  Text2=Text2 + (Text1[I+1])`
	`  else :`
	`  Text2=Text2 + "*"`
	`  I=I+1`
	`  print(Text2)`
	`change()`
		[3]

OR

```
D={'India':'New Delhi', 'China':'Beijing', 'USA':'Washington DC',
    'UK':'London'}
for i in D:
   if 'U' in i:
      D[i]+='Ok'
for i in D.values():
  print(i,end=' ')
```

Q.No.	**SECTION – D (4 × 4 = 16 Marks)**	Marks

32. Consider the table dress as given below: **[4]**

TABLE : DRESS

DCODE	ITEMNAME	SIZE	PRICE	SECTION
S002	Pant	36	3000	gents
S005	Shirt	42	2500	gents
S001	Kurti	32	2600	ladies
S004	Lehenga	36	6000	ladies
S003	Frock	34	3400	ladies
S007	T shirt	42	2300	gents
S008	Kurti	36	2900	ladies
S009	Jeans	44	4500	gents
S006	Leggings	40	1200	ladies

A) Write MySQL commands for the following queries:

I) To display the itemname, their price and section by arranging them in descending order as per price and ascending order as per section.

II) To display the itemname and Net price of all dresses belongs to gents. Net price is calculated as price-10% of the current price.

III) To display the details of the dresses those itemname contains ‘e’ within it.

IV) To display the maximum price and minimum price of dresses for each section.

OR

B) Write the output of the following queries:

I) SELECT ITEMNAME, SIZE FROM DRESS WHERE PRICE BETWEEN 2500 AND 3500 AND SECTION= ‘GENTS’;

II) SELECT COUNT(DISTINCT SECTION) FROM DRESS;

III) SELECT SIZE, PRICE FROM DRESS WHERE SECTION= ‘ladies’ ORDER BY SIZE DESC, DCODE;

IV) SELECT DCODE, PRICE FROM DRESS WHERE ITEMNAME LIKE ‘%t’ ;

33. Manish is a Python programmer working in a School. For the Result analysis in School, he has created a csv file named student.csv, to store the results of students in different Exams. The structure of record of file **student.csv** is : **[4]**

[RollNo, Name, Percentage]

Where,

RollNo is the Roll Number of student (integer)

Name is the Student Name (string)

Percentage is the percentage of marks secured by the student (float).

For efficiently maintaining data of the Result analysis, Manish wants to write the following user defined functions.

(I) **ADD()** – To accept and add data of students to a CSV file 'student.csv'.

(II) **Display()** – To read all content of "student.csv" and display records of only those students who scored more than 90 percentage.

34. John has been entrusted with the management of a Healthcare database. He needs to access some information from DOCTOR and DEPT tables for a survey analysis. Help him extract the following information by writing the desired SQL queries as mentioned below. **[4]**

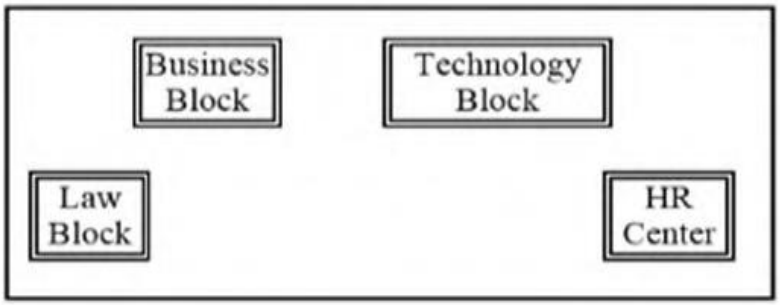
Table: **DOCTOR**

DId	DName	Gender	Age	Salary
D123	Sneha Garg	F	35	85000
D234	Ishan Mehera	M	40	91000
D456	Sankalpa Kaur	F	32	95850
D656	Shailender Gupta	M	42	98750
D234	Yaschika Lamba	F	39	75300
D334	Deepak	M	45	85400

Table: **DEPT**

DId	Department	Charges	OPD_Days
D123	Gynaecology	700	MWF
D234	Cardiology	850	MWF
D456	Gynaecology	700	TTS
D656	Cardiology	850	MWF
D234	ENT	900	TTS
D334	Neurology	950	TTS

	I) To display DName, Department and Charges from the above tables. II) Display total charges of the doctors according to department wise. III) Increase the charges of Neurology Department by 10%. IV) (A) Show the details of the male doctors whose age is between 40 to 50. **OR** (B) To count total number of male and female doctors working in the hospital.	
35.	A table, named PRODUCTS, in the SHOPDB database, has the following structure: Field | Type productID | int(11) productName | varchar(30) cost | float stock | int(11) Write the following Python function to perform the specified operation: **AddAndShowProducts()**: To input details of a product and store it in the PRODUCTS table. The function should then retrieve and display all records from the PRODUCTS table where the cost is less than 50. Assume the following for Python-Database connectivity: Host: localhost User: admin Password: Secret123	**[4]**
Q.No.	**SECTION – E (2 × 5 = 10 Marks)**	**Marks**
36.	Alex is a manager at a small tech company. He needs to manage the records of various employees. For this, he wants the following information of each employee to be stored in a binary file **'Emp.dat'**. • Employee_ID – integer • Employee_Name – string • Job_Title – string • Salary – float You, as a programmer of the company, have been assigned to do this job for Alex.	**[5]**

	(I) Write a function to input the data of an employee and append it to a binary file. (II) Write a function to update the data of employees whose salary is above ₹100,000 and change their job title to "Senior Developer". (III) Write a function to read the data from the binary file and display the data of all those employees who are not "Senior Developer".	
37.	Xonal University is setting up its academic blocks at Udaipur and is planning to set up a network. The University has 3 academic blocks and one Human Resource Centre as shown in the diagram below:  Center to Center distances between various blocks/center is as follows: Law Block to Business Block — 40m Law Block to Technology Block — 80m Law Block to HR Centre — 105m Business Block to HR Centre — 30m Technology Block to HR Centre — 15m No of computers in various blocks/center is as follows: Law Block — 15 Technology Block — 40 HR Centre — 115 Business Block — 25 (I) Suggest an ideal layout for connecting these blocks/centers for wired connectivity. (II) Which device will you suggest to be placed/installed in each of these blocks/centers to efficiently connect all the computers within these blocks/centers. (III) Suggest the placement of Server in the network with justification. (IV) The university is planning to connect its admission office in Delhi, which is more than 780 km from the university. Which type of network out of LAN, MAN, or WAN will be formed? Justify your answer. (V) (A) Suggest the device/ software to be installed in Udaipur campus to take care of data security. **OR** (B) Suggest the placement of repeater in the Network with justification.	**[5]**

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