KENDRIYA VIDYALAYA SANGATHAN CHANDIGARH REGION
PRE-BOARD -II EXAMINATION - 2024-25
MARKING SCHEME

Class: XII **Max Marks:70**
Subject: COMPUTER SCIENCE (083) **Time: 03:00 Hrs**

Q. no	QUESTIONS	marks
1	State True or False : "In Python, tuple is a mutable data type". **Answer: FALSE**	1
2	Select the correct output of the code : S = "text#next" print(S.strip("t")) (A) ext#nex (B) ex#nex (C) text#nex (D) ext#next **ANS: (A) ext#nex**	1
3	What will be the output : print(16*5/4*2/5-8) a) -3.33 b) 6.0 c) 0.0 d) -13 **ANS: C) 0.0**	1
4	Select the correct output of the code : S="Amrit Mahotsav @ 75" A=S.split(" ",2) print(A) (a) ('Amrit', 'Mahotsav', '@', '75') (b) ['Amrit', 'Mahotsav', '@ 75'] (c) ('Amrit', 'Mahotsav', '@ 75') (d) ['Amrit', 'Mahotsav', '@', '75'] **ANS: d) ['Amrit', 'Mahotsav', '@ 75']**	1
5	Find the output: A="MISSISSIPPI" print(A[:4]+'#'+A[-5:-1]) a) MISSI#SIPPI b) MISS#SIPP c) MISS#IPPIS d) MISSI#PPIS **ANS: b) MISS#SIPP**	1
6	What will be the output of the following code ? Tuple1=(10,) Tuple2=Tuple1*2 print(Tuple2) a) 20	1

	b) (20,) c) (10,10) d) Error **ANS: c) (10,10)**	
7	What will be output of the following code: d1={1:2,3:4,5:6} d2=d1.get(3) print(d2) a) 4 b) 3 c) 5 d) 6 **ANS: a) 4**	1
8	Select the output of the code: s = “Bring it on” l = s.split() s_new = “#”.join([l[0].lower(), l[1], l[2].title()]) print(s_new) a) bring#it#ON b) bring#it#on c) Bring#it#On d) bring#it#On **ANS: d) bring#it#On**	1
9	If a table which has one Primary key and two candidate keys. How many Alternate keys will this table have? (A) 1 (B) 2 (C) 3 (D) 4 **ANS: A)1**	1
10	Which of the following modes in Python creates a new file, if file does not exist and overwrites the content, if the file exists ? (a) r+ (b) r (c) w (d) a **ANS: c) w**	1
11	State whether the following statement is True or False: While handling exceptions in python name of the exception has to be compulsorily added with except clause **ANS: false**	1
12	What will be the output of the following code? c = 10 def add(): global c c = c + 5 print(c,end='#') add() c=12 print(c,end='%') (A) 15%12# (B) 15%12#	1

	(C) 15#12% (D) 12%15# **ANS: (C) 15#12%**	
13	_____ is used in pattern matching with (% , _) in where clause to put condition **ANS: like**	1
14	Fill in the blank : _____ statement of SQL is used to insert new records in a table. (a) ALTER (b) UPDATE (c) INSERT (d) CREATE **ANS: c) insert**	1
15	In which datatype the value stored is not padded with spaces to fit the specified length, instead it only take up the space they need to store the data. (A) DATE (B) VARCHAR (C) FLOAT (D) CHAR **ANS: (B) VARCHAR**	1
16	Which aggregate function will return cardinality of the table (a) sum() (b) count() (c) count(*) (d) max() **ANS: (b) count(*)**	1
17	Which protocol is a set of rules for transmitting data over the internet, and is the basis for the World Wide Web: (a) pop (b) http (c) ftp (d) smtp **ANS:b) http**	1
18	Ethernet card is also known as : (a) LIC (b) NIC (c) MIC (d) OIC **ANS: b)NIC**	1
19	Fill in the blank : In _____ switching, before a communication starts, a dedicated path is identified between the sender and the receiver. (a) Packet (b) Graph (c) Circuit (d) Plot **ANS: (c) Circuit**	1

20	Assertion (A): CSV module allows to write a single record into each row in CSV file using writerow() function. Reason (R): The writerow() function creates header row in csv file by default. **ANS: (C)A is True but R is False**	1
21	Assertion (A): A SELECT command in SQL can have both WHERE and HAVING clauses. Reasoning (R): WHERE and HAVING clauses are used to check conditions, therefore, these can be used interchangeably. **ANS: (C)A is True but R is False**	1
	SECTION B	
22	(i) 1 mark for correct difference (ii) Tuple 1 mark for correct answer	
23	**(½ x 4 = 2 Marks for each correct operator)**	
24	(I) A) L1.append('maths') OR B) L1.sort(reverse=True) (1 mark for correct answer) (II) A) L1.pop(0) OR B) L1.index('cs') (1 mark for correct answer)	2
25	What possible outcome(s) will be produced when the following code is executed? import random value=random.randint(0,3) fruit=["APPLE","ORANGE","MANGO","GRAPE"] for i in range(value): print(fruit[i],end='##') a) APPLE## b) APPLE##ORANGE## c) APPLE## ORANGE##GRAPE## d) ORANGE##MANGO##APPLE## **ANS: a) APPLE##** **b) APPLE##ORANGE##** (1 mark for each correct output)	2
26	Rewrite the following code in Python after removing all syntax error(s) and underline each correction done in the code . **def** fun1(): **num=30** for k **in** range(0,num): if k%4==0 : print(k*4) else: print(k+3) ½ mark for each correction	2
27	(I) A) UNIQUE	2

	OR B) NOT NULL (1 mark for correct answer) (II) A) ALTER TABLE MOBILE DROP PRIMARY KEY; OR B) ALTER TABLE MOBILE ADD PRIMARY KEY (M_ID); (1 mark for correct answer	
28	i) Expand the following : aSMTP: Simple Mail Transfer Protocol. b) VoIP: Voice Over Internet Protocol (1/2 mark for each correct) ii) Give one disadvantage of Star topology (1 mark for correct answer) OR i) What is a web browser ? ii) Define the term Telnet (1 mark for each correct answer)	2
	SECTION C	

29	Write a function in Python to count the number of lines in a text fie 'EXAM.txt' which start with an alphabet 'T' .
	def show():
	count=0
	f=open("EXAM.txt",'r')
	data=f.readlines()
	for word in data:
	if word[0]=='T':
	count+=1
	print(count)
	f.close()
	(½ mark for correct function header)
	(½ mark for correctly opening the file)
	(½ mark for correctly reading from the file)
	(½ mark for checking the line starts with "T")
	(1/2 mark for correctly counting)
	(½ mark for printing the count)
	
	OR
	Write a function in Python that count the number of "can" words present in a text file "DETAILS.txt"
	def show():
	count=0
	f=open("DETAILS.txt ",'r')
	data=f.read()
	d=data.split()
	for word in d:
	if word=='can':
	count+=1
	print(count)
	f.close()
		3

	(½ mark for correct function header) (½ mark for correctly opening the file) (½ mark for correctly reading from the file) (½ mark for checking the word can) (1/2 mark for correctly counting) (½ mark for printing the count)	

30	Thushar received a message(string) that has upper case and lower-case alphabet. He want to extract all the upper case letters separately .Help him to do his task by performing the following user defined function in Python:
	a) Push the upper case alphabets from the string into a STACK
	b) Pop and display the content of the stack.
	
	def extract_uppercase_letters(message):
	stack = []
	for char in message:
	if char.isupper():
	stack.append(char)
	
	def pop_stack():
	while stack:
	print(stack.pop(), end=" ")
	
	(½ Mark for the correct loop in the function)
	(½ Mark for correctly checking the uppercase in the function)
	(½ Mark for pushing the correct character into stack)
	(½ Mark for the correct loop in the function for Pop)
	(½ Mark for correctly display and pop of item from stack)
	(½ Mark for correct declaration of both functions)
	
	Or
	Consider a list named Nums which contains random integers. Write the following user defined functions in Python and perform the specified operations on a stack named BigNums.
	(i)
	PushBig () : It checks every number from the list Nums and pushes all such numbers which have 5 or more digits into the stack, BigNums.
	(ii)
	PopBig () : It pops the numbers from the stack, BigNums and displays them. The function should also display "Stack Empty" when there are no more numbers left in the stack.
	
	Ans:
	def PushBig(Nums,BigNums):
	for N in Nums:
	if len(str(N)) >= 5:
	BigNums.append(N)
	def PopBig(BigNums):
	while BigNums:
	print(BigNums.pop())
	else:
	print("Stack Empty")
	(No marks for any function header as it was a part of the question)
	(½ Mark for the correct loop in the function PushBig)
		3

	(½ Mark for correctly checking the number of digits in the function PushBig) (½ Mark for pushing the correct number into BigNums in the function PushBig) (½ Mark for the correct loop in the function PopBig) (½ Mark for correctly checking the underflow condition and printing "Stack Empty" in the function PopBig) (½ Mark for popping and printing the correct number in the function PopBig) Note: Ignore the declarations of Nums and/or BigNums **No marks for any function header as it was a part of the question** **(2x1½ mark for correct function body;)**	

31	Predict the output of the Python code given below:
	def calculate(str):
	text=''
	x=range(len(str)-1)
	for i in x:
	if str[i].isupper():
	text+=str[i]
	elif str[i].islower():
	text+=str[i+1]
	else:
	text+='@'
	return text
	start='Pre-board Exam'
	final=calculate(start)
	print(final)
	Ans: Pe-@oard @Eam
	deduct ½ mark for one wrong character
	
	or
	Predict the output of the following code :
	def Total (Num=10):
	Sum=0
	for C in range(1,Num+1):
	if C%2!=0:
	continue
	Sum+=C
	return Sum
	print(Total(4),end="$")
	print(Total(),end="@")
	
	ANS: 6$30@
	(1 ½ mark for each correct value of print) (deduct ½ mark for not printing @$)
		3

	SECTION D	

32	Consider the table BOOK as given below	4

Book_id	Book_name	Author_name	Publisher	Price	Quantity
C0001	Fast Cook	Lata Kapoor	EPB	355	5
F0001	The Tears	William Hopkins	First Publ	650	20
T0001	My First c++	Brain & Brooke	EPB	350	10
T0002	C++ Brain works	A.W. Rossaine	TDH	350	15
F0002	Thunderbolts	Anna Roberts	First Publ	750	50

The table contains many more records than shown here.

(A) Write the following queries:

i. To show book name, Author name and price of books of **"First Publ"** Publisher
ii. To list the names of those books whose name starts with F
iii. To Display the names and price from books in ascending order of their prices.
iv. To increase the price of all books of EPB publishers by 50.

OR

(B) Write the output:

i. Select Publisher, sum(quantity) as total_quantity from book group by Publisher;
ii. Select Book_name, Author from book where author like '%Kapoor%';
iii. Select * from book where price between 500 and 1000;
iv. Select count(*) from book;

Ans: a. SELECT Book_name, Author_name, Price FROM Book WHERE Publisher = 'First Publ';
b. SELECT Book_name FROM Book WHERE Book_name like 'F%';
c. SELECT Book_name, Price FROM Book ORDER BY Price ASC;
d. UPDATE Book SET Price=Price+50 WHERE Publisher = "EPB";

4X1 for each correct query

OR

(i)

Publisher	Total _Quantity
EPB	15
First Publ	70
TDH	15

(ii)

Book_name	Author_name
Fast Cook	Lata Kapoor

(iii)

Book_id	Book_name	Author_name	Publisher	Price	Quantity
F0001	The Tears	William Hopkins	First Publ	650	20
F0002	Thunderbolts	Anna Roberts	First Publ	750	50

(iv) 5

1 mark for each correct output

33	A csv file " record.csv " contains the data . Each record consists of a list with field elements as empid, name and sal to store employee id, employee name and employee salary respectively.	2+2

	Write user defined functions s in Python that defines the following: (i) ADD() – To accept and add data of an employee to a CSV file 'record.csv'. (ii) COUNTR() – To count the number of records present in the CSV file named 'record.csv' whose salary is more than 100000. **import csv** **def ADD():** **f=open(" record.csv",'w')** **csvwriter=csv.writer(f)** **csvwriter.writerow(['empid','name','salary'])** **while True:** **empid=int(input("Enter your employee id:"))** **name=input("Enter your name:")** **sal=int(input("Enter your salary:"))** **csvwriter.writerow([empid,name,sal])** **print("Do you want to enter more records:")** **ch=input()** **if(ch=='n'):** **break** **f.close()** (½ mark for opening in the file in right mode) (½ mark for correctly creating the writer object) (½ mark for correctly input the data) (½ mark for correctly writing the records) **def COUNTR():** **f=open("record.csv",'r')** **c=csv.reader(f)** **c1=list(c)** **cnt=0** **for i in c1:** **if(i[2]>100000):** **cnt+=1** **print("No of records in the file:",cnt)** **f.close()** (½ mark for opening in the file in right mode) (½ mark for correctly creating the reader object) (½ mark for correctly checking the condition) (½ mark for correctly displaying the count)	
34	Aman has been entrusted with the management of some Institution's Database. He needs to access some information from FACULTY and COURSES tables for a survey analysis. Help him extract the following information by writing the desired SQL queries as mentioned below. Teacher	4

T_ID	Name	Age	Department	Date_to_join	Salary	Gender	P_ID
1	Jugal	34	Computer Sc.	10/01/2017	12000	M	3
2	Sharmila	31	History	24/03/2008	20000	F	1
3	Sandeep	32	Mathematics	12/12/2016	30000	M	2
4	Sangeeta	35	History	01/07/2015	40000	M	1
5	Rakesh	42	Mathematics	05/09/2007	25000	M	2
6	Shyam	50	History	27/06/2008	30000	M	1
7	Shiv Om	44	Computer Sc.	25/02/2017	30000	M	3
8	Shalakha	33	Mathematics	31/07/2018	20000	F	2

Posting

P_ID	DEPARTMENT	PLACE
1	History	Agra
2	Mathematics	Raipur
3	Computer Science	Delhi

(i) To list the names and age of female teachers who are in Mathematics department.

(ii) To display the name teachers who are posted in Agra

(iii) To display the max(date_to_join), min(date_to_join) of teachers

(iv)

(A) To display name, bonus, department for each teacher where bonus is 10% of salary

Or

(B) To display the Cartesian Product of these two tables.

Ans:

(i) Select name, age from teacher, posting where teacher.p_id=posting.p_id and department='Mathematics';

(ii) Select name from teacher, posting where teacher.p_id=posting.p_id and place='Agra';

(iii) Select max(date_to_join), min(date_to_join) from teacher;

(iv) Select name, 10/100*salary "Bonus" , department from teacher natural join posting;

(v) Select * from teacher, posting;

35 Arushi has created a table named student in MYSQL database, School: 4

•rno(Roll number)- integer

• name(Name) - string

• clas (Clas) – string

• marks – float

Note the following to establish connectivity between Python and MySQL: • Username - root • Password - 12345 • Host - localhost

i) Arushi, now wants to add record of student by taking data from user. Help arushi to write the program in Python.

ii) Also write code to display the total number of records present in the table.

```
import mysql.connector as mycon
def AddAndDisplay():
```

```
mydb=mycon.connect(host="localhost",user="root", passwd="12345", database= "School" )
mycursor=mydb.cursor()
rno=int(input("Enter Roll Number :: "))
name=input("Enter name :: ")
clas=int(input("Enter class :: "))
marks=int(input("Enter Marks :: "))
query="insert into student values({},'{}',{},{})".format(rno,name,clas,marks)
mycursor.execute(query)
mycursor. commit()
print ("Data Added successfully")
mycur.execute("select * from student ")
print(mycur.rowcount())
```

(½ mark for correctly importing the connector object)
(½ mark for correctly creating the connection object)
(½ mark for correctly creating the cursor object)
(½ mark for correctly inputting the data)
(½ mark for correct creation of first query)
(½ mark for correctly executing the first query with commit)
(½ mark for correctly executing the second query)
(½ mark for correctly displaying the data)

SECTION E

36 A binary file "STUDENT.DAT" has structure [admission_number, Name, Percentage]. 5

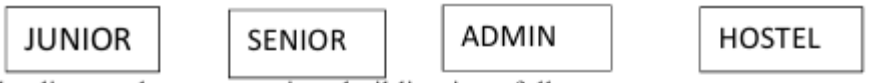
(I) Write a function to input the data of a candidate and append it in a binary file.

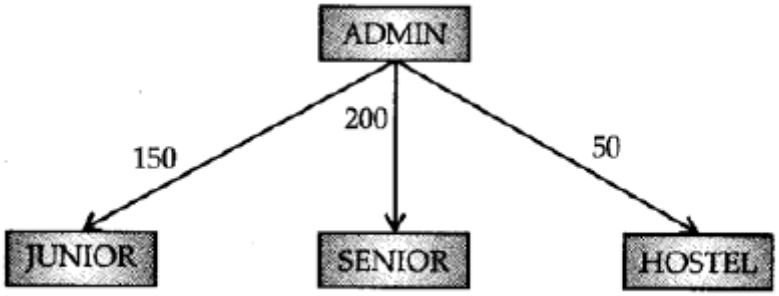
(ii)) Write a function to increase the percentage of student to 95% whose admission number is input by the user.

Ans:

(I)

```
import pickle
def input_candidates():
    f=open("student.dat",'ab')
    c = []
    admno = int(input("Enter admission number: "))
     name = input("Enter Candidate Name: ")
     per = int(input("Enter percentage: ") )
      c=[admno,name,per]
      pickle.dump(c,f)
      print("Candidate data appended successfully.")
      f.close()
def update_per():
  adm=int(input("enter the admission number whose percentage is to be updated"))
  f=open("student.dat",'rb+')
  try:
      while True:
      a=f.tell()
      L=pickle.load(f)
      If(L[0]==adm):
         L[2]=95
         f.seek(a,0)
         pickle.dump(L,f)
         print("data updated")
         break
```

	except EOError: print("record not found") (1/2 mark of import pickle) (1/2 mark for input) (1/2 mark for opening file in append mode) (1/2 mark for using dump) (1/2 mark for opening file in read write mode) (1/2 mark for using load) (1 mark for checking the condition and updating the value) (1 mark for updating the data in file)	
37	Oxford college, in Delhi is starting up the network between its different wings. There are four Buildings named as SENIOR, JUNIOR, ADMIN and HOSTEL as shown below:  The distance between various building is as follows: ADMIN TO SENIOR — 200 m ADMIN TO JUNIOR — 150 m ADMIN TO HOSTEL — 50 m SENIOR TO JUNIOR — 250 m SENIOR TO HOSTEL — 350 m JUNIOR TO HOSTEL — 350 m Number of computer in each building is : SENIOR — 130 JUNIOR — 80 ADMIN — 160 HOSTEL — 50 i) uggest the cable layout of connections between the buildings. ii) Suggest the most suitable place (i.e., building) to house the server of this college, provide a suitable reason. iii) Is there a requirement of a repeater in the given cable layout? Why/ Why not? iv) Suggest the placement of hub/switch with justification. v) The organisation also has inquiry office in another city about 50-60 km away in hilly region. Suggest the suitable transmission media to interconnect to college and inquiry office out of the following: a. Fibre optic cable b. Microwave c. Radio wave or What would be your recommendation for enabling live visual communication between the Admin Office at the Delhi campus and the Mumbai Branch Office from the following options: a) Video Conferencing b) Email c) Telephony d) Instant Messaging ANS: (i) 1 mark for correct layout	5



(ii) ADMIN Block as it has maximum number of computers. (1 mark for correct answer)

(iii) Repeater can be placed between ADMIN and SENIOR building and ADMIN and JUNIOR as the distance is more than 100

I mark for placement of repeater in layout

(iv)in all the wings (1 mark for correct answer)

(v) microwave

Or

Video Conferencing