KENDRIYA VIDYALAYA SANGATHAN, RAIPUR REGION
FIRST PRE-BOARD EXAM (2024-25)
SUB: COMPUTER SCIENCE (Python) (083)
CLASS: XII
Max Marks: 70 TIME: 03 HOURS

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.

	PART A	
01	Which exception is raised when attempting to access a non-existent file? (a) FileNotFoundError (b) FileNotAccessibleError (c) NonExistentFileError (d) InvalidFileAccessError	1

02	Find the output of the following code.
	Name=" PythoN3@1"
	R=" "
	for x in range(len(Name)):
	if Name[x]. isupper():
	R=R+Name[x]. lower ()
	elif Name[x]. islower():
	R=R+Name[x]. upper ()
	elif Name[x]. isdigit:
	R=R+Name[N-1]
	else:
	R=R+"#"
	Print(R)
	(a) pYTHOn##@ (b) pYTHOnN#@
	(c) pYTHOn#@ (d) pYTHOnN@#
		1

03	Which of the following is the correct output for the execution of the following Python statement? print (5 + 3 ** 2 / 2) (a) 32 (b) 8.0 (c) 9.5 (d) 32.0	1

04	What is the output of the expression? country='International' print(country.split("n")) (a) ('I', 'ter', 'atio', 'al') (b) ['I', 'ter', 'atio', 'al'] (c) ['I', 'n', 'ter', 'n', 'atio', 'n', 'al'] (d) Error	1
05	What will be the output of the following Python code? print ('1Rn@'. lower ()) (a) n (b) 1rn@ (c) rn (d) r	1
06	What will be the output of the following Python code? >>>t= (1,2,4,3) >>>t [1: -1] (a) (1, 2) (b) (1, 2, 4) (c) (2, 4) (d) (2, 4, 3)	1
07	Which of the following statements create a dictionary? (a) d = { } (b) d = {"john":40, "peter":45} (c) d = {40:" john", 45:" peter"} (d) All of the mentioned	1
08	Which will be the output for the following Python statement L= [10,20,30,40,50] L=L+5 Print(L) (a) [10,20,30,40,50,5] (b) [15,25,35,45,55] (c) 5,10,20,30,40,50 (d) Error	1
09	Suppose t = (1, 2, 4, 3), which of the following is incorrect? (a) print (t [3]) (b) t [3] = 45 (c) print(max(t)) (d) print(len(t))	1
10	Write the missing statement: To write the string "Hello, World!" to a file in Python, use the following code: with open ('example.txt', 'w') as file: _____ (a) file.write('Hello, World!') (b) file.read('Hello, World!') (c) file.readlines('Hello, World!') (d) file.open('Hello, World!')	1
11	Which of the following is a valid reason for using a 'finally' block? (a) To clean up resources like closing files or releasing memory (b) To handle different types of exceptions (c) To break out of a loop (d) To define a block of code that will never be executed	1

12	What will be the output of the following code?
	def outer_function():
	x = 10
	def inner_function():
	x = 20
	print ("Inner:", x)
	inner_function()
	print ("Outer:", x)
	outer_function()
	(a) Inner: 10, Outer: 20
	(b) Inner: 20, Outer: 20
	(c) Inner: 10, Outer: 10
	(d) Inner: 20, Outer: 10
		1

13	Which keyword is used to remove redundant data from a relation?	1
14	What pattern should be used in the WHERE clause to find all records where the 'email' field contains a domain 'example.com'? (a) LIKE '%@example.com' (b) LIKE 'example.com%' (c) LIKE '%example.com%' (d) LIKE '_example.com'	1
15	What type of data type is used to store large text values in SQL? (a) VARCHAR (b) INT (c) TEXT (d) CHAR	1
16	Which SQL statement would you use to calculate the total sum of the 'price' column in the 'products' table? (a) SELECT COUNT (price) FROM products; (b) SELECT SUM (price) FROM products; (c) SELECT AVG (price) FROM products; (d) SELECT MAX (price) FROM products;	1
17	Which of the following protocols is used for secure communication over a computer network? (a) HTTP (b) FTP (c) SSH (d) POP	1
18	Which device is typically used to extend the range of a wireless network by receiving and retransmitting signals? (a) Hub (b) Router (c) Repeater (d) Switch	1
19	Which of the following statements about packet switching is TRUE? (a) Packet switching requires a dedicated path between source and destination. (b) Packet switching is less efficient than circuit switching. (c) In packet switching, packets can take different paths to reach the destination. (d) Packet switching does not support error checking mechanisms.	1

	Q20 and Q21 are Assertion(A) and Reason(R) based questions. Mark the correct choice as: (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): Default arguments in functions allow some arguments to be omitted when the function is called. Reason (R): Default arguments must be provided from right to left in the parameter list.	1
21	Assertion (A): The GROUP BY clause can be used without any aggregate functions in an SQL query. Reason (R): The GROUP BY clause alone can be used to eliminate duplicate records.	1
	PART B	
22	How do tuples and lists in Python illustrate the concepts of mutable and immutable types?	2
23	Explain the difference between the '==' operator and the 'is' operator in Python.	2
24	(i) (a) How would you add an element 60 to the end of the list my_list = [10, 20, 30, 40, 50]? OR (b) Which method would you use to remove the first occurrence of the value 20 from the list my_list = [10, 20, 30, 20, 40]? (ii) (a) How do you find the length of the list my_list = [10, 20, 30, 40, 50]? OR (b) How can you insert an element 25 at the second position in the list my_list = [10, 20, 30, 40, 50]?	2

25	What possible output(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the minimum and maximum values that can be assigned to the variable End.
	
	`import random`
	`Colours = [“VIOLET”, “INDIGO”, “BLUE”, “GREEN”, “YELLOW”, “ORANGE”, “RED”]`
	`End = randrange(2) +3`
	`Begin = randrange(End) + 1`
	`for i in range(Begin,End):`
	`  print(Colours[i],end=”&”)`
	
	(a) INDIGO&BLUE&GREEN
	(b) VIOLET&INDIGO&BLUE&
	(c) BLUE&GREEN&YELLOW&
	(d) GREEN&YELLOW&ORANGE&
		2

26	Rewrite the following code in Python after removing all syntax error(s) and underline each correction done in the code. 30 = num for k in range (0, num) IF k%4==0: print(k*4) Else: print(k+3)	2
27	(i) Satheesh has created a database “school” and table “student”. Now he wants to view all the databases present in his laptop. Help him to write SQL command for that, also to view the structure of the table he created. OR (ii) Meera got confused with DDL and DML commands. Help her to select only DML command from the given list of command.	2
28	(a) Explain how a ring topology functions and mention one scenario where it is particularly useful. OR (b) Identify and explain the role of the central component in a star topology network. How does this component affect network performance?	2
	PART 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’.
	OR
	Write a function in Python that count the number of “can” words present in a text file “DETAILS.txt”.
	def count_word():
	count=0
	f=open("textfiles.txt","r")
	contents=f.read()
	word=contents.split()
	for i in word:
	if i==’can’:
	count+=1
	print ("Number of words in the File is:”, count)
	f.close( )
	count_word( )
		3

30	Julie has created a dictionary containing names and marks as key value pairs of 6 students. Write a program, with separate user defined functions to perform the following operations Push the key (name of the student) of the dictionary into a stack, where the corresponding value (marks) is greater than 75. Pop and display content of the stack. For example: If the sample content of the dictionary is as follows R= {“OM”:76,” JAI”: 45, “BOB”:89, “ALI”:65, “ANU”:90,” TOM”:82}	3

OR

Alam has a list containing 10 integers. You need to help him create a program with separate user defined functions to perform the following operations based on this list.

- Traverse the content of the list and push the even numbers into a stack.
- Pop and display the content of the stack.

For Example: If the sample Content of the list is as follows: N=[12, 13, 34, 56, 21, 79, 98, 22, 35, 38] Sample Output of the code should be: 38 22 98 56 34 12

31 Predict the output of the Python code given below: 3

```
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)
```

OR

Predict the output of the Python code given below:

```
tuple1 = (33, 24, 44, 42, 54 ,65)
list1 =list(tuple1)
new_list = [ ]
for i in list1:
     if i>40:
          new_list.append(i)
new_tuple = tuple(new_list)
print(new_tuple)
```

PART D

32 (A) 4

T_ID	NAME	AG	SEX	DEPT	D_O_JOIN	SALARY
902	SANDEEP	45	M	COMPUTER	10/10/2002	56000
813	SANGEETA	34	F	HISTORY	24/9/2010	50000
771	JOEL	48	M	ENGLISH	4/5/2001	67900
703	MANVITH	36	M	MATHS	27/09/2012	48000
606	NEENA	32	F	ENGLISH	23/5/2013	40000
537	ABHILASH	42	M	MATHS	6/2/2006	47000
420	MUHSIN	49	M	ENGLISH	8/3/2003	70450
412	SUBESH	52	M	HINDI	10/11/1999	60500
345	RENJINI	36	F	COMPUTER	27/4/2010	45000
218	DEEPTI	28	F	HINDI	2/2/2016	40000
160	SHUBHAM	39	M	SCIENCE	19/9/2011	45000

Based on the above table, Write SQL command for the following:
i) To show all information about the teacher of maths department
ii) To list name and department whose name starts with letter 'M'
iii) To display all details of female teacher whose salary in between 35000 and 50000
iv) To display all the List of Subjects taken by the teachers.

OR

(B)Write the outputs of the SQL queries (i) to (iv) based on the relations Teacher and Placement given below:

BOOK

Book_id	Book_name	Price	Qty	Author_id
1001	My first C++	323	12	204
1002	SQL basics	462	6	202
1003	Thunderbolts	248	10	203
1004	The tears	518	3	204

AUTHOR

Author_id	Author_name	Country
201	William Hopkins	Australia
202	Anita	India
203	Anna Roberts	USA
204	Brain&Brooke	Italy

(i) SELECT Author_id, avg(price) FROMBOOK GROUP BYAuthor_id;
(ii) SELECT MAX (price), MIN (price) FROM BOOK;
(iii) SELECTBook_name,Author_name,countryFROM BOOK B, AUTHOR A WHERE B.Author_id = A.Author_id AND price>300;
iv) SELECT Author_ name FROM AUTHOR WHERE Author_ nameLIKE "A%";

33 Mr. Rao is writing a program to create a csv file "employee.csv" which will contain user name and password for department entries. He has written the following code. As a programmer, help him to successfully execute the given task. 4

```
import ----------------                                   #statement 1
def add_emp(username,password):
    f=open ('employee.csv','----------')                  # statement 2
    content=csv.writer(f)
    content.writerow([username,password])
    f.close()
def read_emp( ):
    with open ('employee.csv','r') as file:
        content_reader=csv.-------------------(file)      # statement 3
        for row in content_reader:
            print (row [0], row [1])
    file.close( )
add_emp('mohan','emp123#')
add_emp('ravi','emp456#')
read_emp()                                                #statement 4
```

i) Name the module he should import in statement 1
ii) In which mode, Mr. Rao should open the file to add record in to the file?
iii) Fill in the blank in statement 3 to read the record from a csv file
iv) What output will he obtain while executing statement 4?

34	Rahul created following table TRAVEL to store the travel details	4

TNO	TNAME	TDATE	KM	VTYPE	NOP
101	NANDA	25-11-2019	100	VOLVO BUS	32
103	SANAL	09-12-2019	210	ORDINARY BUS	45
105	RAMU	06-12-2019	300	VOLVO BUS	40
102	SOMU	25-12-2019	120	AC DELEX BUS	35
107	NEHA	05-11-2019	250	ORDINARY BUS	25
104	SNEHA	06-11-2019	300	VOLVO BUS	32
106	KIRAN	12-12-2019	125	VOLVO BUS	43

Based on the data given above answer the following questions:
(i) Identify the most appropriate column, which can be considered as Primary key.
(ii) If 3 columns are added and 1rows are deleted from the table TRAVEL, what will be the new degree and cardinality of the above table?
(iii) Write the statements to:
(a) Insert the following record into the table

110	BIMAL	28-11-2022	200	VOLVO	40

(b) Increase KM travelled by 10 if the VTYPE is VOLVO.

OR (Option for part iii only)

(iii) Write the statements to:
(a) Delete the record of travel of traveler NANDA.
(b) Add a column MILEAGE in the table with data type as integer

35	The code given below inserts the following record in the table Employee: Empid – integer Name – string salary-float Note the following to establish connectivity between Python and MYSQL: • Username is root • Password is tiger • The table exists in a MYSQL database named Empolyee. • The details (Empid, Name, salary) are to be accepted from the user. Write the following missing statements to complete the code: Statement 1 – to import correct library Statement 2 – to form the cursor object Statement 3 – to execute the command that inserts the record in the table Employee. Statement 4- to add the record permanently in the database import _____ #STATEMENT1 from mysql.connector import Error connection = mysql.connector.connect(host='localhost', database='Employee', user='root', password='tiger') cursor=_____#STATEMENT2 empid=int (input ("enter Empid")) name=input ("enter name") salary=float (input ("ENTER SALARY"))	4

	result = _____#STATEMENT3 _____#STATEMENT4	
	PART E	

36	i) What is the difference between 'r' and 'rb' mode in Python file?
	r is used to read text files and rb is used to read binary files
	(1 mark for each correct output)
	ii) A binary file "STUDENT.DAT" has structure [admission_number, Name, Percentage]. Write a function countrec( ) in Python that would read contents of the file "STUDENT.DAT" and display the details of those students whose percentage is above 90. Also display number of students scoring above 90%
	import pickle
	def countrec():
	fobj=open('student.dat','rb')
	num=0
	try:
	while True:
	rec=pickle.load(fobj)
	if rec [2]>90:
	num=num+1
	print (rec [0], rec [1], rec [2])
	except:
	fobj.close()
	return num
		5

37	The USA-based company, Micron, has selected Tata Projects to build the semiconductor assembly and test facility in Sanand Town, near Ahmedabad in Gujurat. It is planning to set up its different units or campuses in Sanand Town and its head office campus in New Delhi. **Shortest distance between various locations of Sanand Town blocks and Head Office at New Delhi:** Training Campus — Research Campus — 3 KM Business Campus — warehousing — 4.5 KM Manufacturing Campus — Research Campus — 1.5 KM Warehousing — Training Campus — 9.5 KM Research Campus — Business Campus — 3.5 KM Warehousing Campus — Research Campus — 2.6 KM Research Campus — New Delhi Head Office Campus — 962KM Number of computers installed at various locations are as follows: Warehousing Campus — 20 computers Research Campus — 200 computers Business Campus — 10 computers Training Campus — 25 computers Manufacturing Campus — 15 Computers Ahmedabad Admin Campus — 15 Computers	5

	As a network consultant, you have to suggest the best network related solution for their issues/problems raised: (i) Suggest the most appropriate location of the SERVER to get the best and effective connectivity. Justify your answer. (ii) Suggest the best wired medium and draw the cable layout (location to location) to efficiently connect various locations (iii) Which hardware device will you suggest to connect all the computers within each location? (iv) Suggest a system (hardware/software) to prevent unauthorized access to or from the network. (v) Which type of network out of the following is formed by connecting the computers of New Delhi Head Office and Sanand Town Units? (a) LAN (b) MAN (c) WAN (d) PAN	

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