केंद्रीय विद्यालय संगठन कोलकाता संभाग

KENDRIYA VIDYALYA SANAGATHAN, KOLKATA REGION

प्री बोर्ड परीक्षा / PRE-BOARD EXAM- 1

कक्षा /CLASS - XII अधिकतम अंक / MAX. MARKS: 70

विषय / SUBJECT : COMPUTER SCIENCE समय /TIME : 3 घंटे / HRS.

प्रश्न पत्र कोड / Q. P. CODE: CS/PB2/23-01

General Instructions:

1. Please check this question paper contains 35 questions.

- 2. The paper is divided into 5 Sections- A, B, C, D and E.
- 3. Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark.
- 4. Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
- 5. Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
- 6. Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
- 7. Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
- 8. All programming questions are to be answered using Python Language only.

	SECTION A (18 Marks)	
1.	Which of the following is an invalid identifier to be used in Python?	1
	aif b. rate/kg c. Not d. false	
2.	Which of the following list method adds each members of an iterable at the end of a list:	1
	a. extend() b. add_iterable() c. enqueue() d. append()	
3.	What will be the output of :	1
	print("Hey Prabhu , Jagganath , What has happened"[4:11]+"Hey Prabhu , Jagganath , What	
	has happened"[-7:-4])	
4.	Which of the following statements is false?	1
	(I) If any error is caused in the try block an exception is raised	
	(II) All exceptions raised within try block are always a python defined library objects	
	(III) The except block removes any error which is found in the try block	
	(IV)We can put an else clause with try-except block, so that it gets executed if there is	
	no error in the try block.	
	a. (II) b.(III) c. both(II)and(III) d. All except(I)	

5.	Which of the following statement(s) would give an error during the execution of the following code? emoji = {'rank':34 , 'rgb':(23,67,34) , 'emotion':'sad' , 'sizes':["10px","20px","30"]} (I) emoji['rank'] = '56' (II) emoji['sizes'][-1]=emoji['sizes'][-1].replace("30","30px") (III) emoji['rgb'][1]+=10 (IV) emoji['emotion'][0]='d'	1
	a. (I) b.(II) c.(III) d.(III)&(IV)	
6.	Which pickle module method is used to read a Python object to a binary file? a. read() b. readline() c. read_object() d. None of the above	1
7.	Given the following dictionaries dict_student = {"rno" : "53", "name" : 'Rajveer Singh',	1
8.	Which of the following is not a component of the math module in Python? a. ceil() b. mean() c. fabs() d. pi	1
9.	<pre>What will be the output of the following code? s = [3,0,[2,1,2,3],1] print(s[s[len(s[2])-2][1]]) a. 0 b. 1 c. [2,1,2,3] d. 2</pre>	1
10.	Expand the following terms: a. POP b. ARPANET	1
11.	Which function is <u>not</u> an aggregate function? a. sum(*) b. total(*) c. count(*) d. avg(*)	1

12.	Which Python function is used to fire a SQL Command to a connected MYSQL database Engine ? a. fire() b. commit() c. execute() d. run()	1
13	Which of the following mode in file opening statement does not overwrites any of the previous content present in the file ? a. w+ b. r+ c. a+ d. None of the above	1
14.	Which of the following statements correctly explain the function of seek() method? a. Tells the current position within the file b. Determines if you can move the file cursor position or not. c. Indicates that the next read or write occurs from that poistion in a file d. Move the current file position to a given specified position.	1
15.	Which of the following statements is false? a. SMTP and POP protocols are used in email communication. b. Ethernet is the huge global network of interconnected computers c. HTTPS is safer than HTTP. d. Interlinking of collection of webpages is called WWW.	1
16.	is a request – response (client –server) protocol that runs over TCP a. FTP b. SMTP c. HTTP d. PPP	1
	Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as i. Both A and R are true and R is the correct explanation for A ii. Both A and R are true and R is not the correct explanation for A iii. A is True but R is False iv. A is false but R is True	
17.	Assertion(A): Key word arguments are related to the function calls Reason(R): When you use keyword arguments in a function call, the caller identifies the arguments by the parameter name	1
18.	Assertion (A): - The acronym for a CSV File is "Comma Separated Value" Reasoning (R):- Since the seprator symbols between data elements with a line should always be a comma hence the name CSV originated.	1

19.	SECTION B (14 Marks) (a) 18 Gbps is equal to how many bits per second? (b) Write any two differences between twisted pair cable and coaxial cable. OR (a) What do you mean by a modem? (b) Write the purpose of a router.	2	
20.	Sunita has written certain code to work with tuples. He is getting some errors. Find the errors:	2	
	t1= (10,20, 30, 40,50, 60, 70, 80) t2=(90,100,110, 120) t3=t1*t2 Print (t5 [0:12:3]) t1[2]=100		
21.	Write a function dispTop(SCORES) in Python, that takes a dictionary SCORES as an argument and returns the names in uppercase of those players who scored more than 50 as a list. For example, Consider the following dictionary which is passed as an argument: SCORES = { "ayan":56, "Smile" :43, "Pritam":18, "rehan":90, "kush":0} Then the function should return an output list as : [AYAN , REHAN] OR Write a function ARRNG(string) which accepts a string arguments and returns a string containing all letters arranged in alphabetical order , removing any duplicate occurrence of a letter.		
	for example: if an string agrument "corporate" is passed then function returns an output string as "aceoprt"		
22.	What will be the output of the following code? Data = ["P", 20, "R", 10, "S", 30] Times = 0 Alpha = "" Add = 0 for C in range (1, 6, 2): Times = Times + C Alpha = Alpha + Data [C-1]+"\$" Add = Add + Data [C] print (Times, Add, Alpha)	2	

23.	Write the Dyth	on statement for each of the following tasks using BUILT- IN	2		
25.	functions/meth		4		
	· ·	ily the last two keys of the dictionary named D			
	1	e elements of the list Lst from index -10 to -4 in reverse order.			
		OR			
	Write the output	t of the following code snippet:			
	tup = ('cold',)				
	n = 4				
	for i in range(int				
	if i % 2 ==				
	tup = (tu	ıp,'cold')			
	else:				
	if i > 1:				
		ontinue tup , 'hot')			
	print(tup)	tup, not j			
	print(tup)				
24.	Differentiate be	etween 'WHERE' clause and 'HAVING' clause in MySQL with appropriate	2		
	example.				
		OR			
		5			
	Differentiate h	etween DELETE and DROP keywords used in MySQL, giving suitable example			
	for each	ctween beleft and bhor keywords ased in MysQe,giving suitable example			
	TOT Each				
25.	A table shop h	nas been created in a database with the following fields:	2		
25.					
	Shop No, Shopname , Type , Category , Location				
	Give the SQL command to display the structure of the table.				
	Then after write a query to remove the record whose Shop_No is 255 and is of category				
	"Electronics".				
		OR			
	Which declaration of data type doesn't use the same number of bytes for every record and				
	consumption of bytes depends on the input data? Which declaration of data type will				
	consume the same number of byte declared and is right padded"?				
		SECTION C (15 Marks)			
26.		e following tables – Bank_Account and Branch:			
	BANK_ACCO				
	E_CODE	NAME			
	E01	ASHISH			
	E02	SURESH			
	BRANCH				
	E_CODE	LOCATION			
	E05	MUMBAI			
	a)What will be the output of the following statement?				
	SELECT * FRC	DM Bank_Account, Branch;			
			1+2		

(b) Write the output of the queries (i) to (iv) based on the table, TECHER given below:

TEACHER

TCODE	TNAME	SUBJECT	SEX	SALARY
5467	Narendra Kumar	Computer Science	М	70000
6754	Jay Prakash	Accountancy	М	Null
8976	Ajay Kumar	Chemistry	М	65000
5674	Jhuma Nath	English	F	55000
8756	Divya Bothra	Computer Science	F	75000
6574	Priyam Kundu	Physics	М	Null
3425	Dinesh Verma	Economics	М	71000

- i) SELECT DISTINCT(SUBJECT) FROM TEACHER WHERE SALARY IS NOT NULL;
- ii) SELECT SUBJECT, COUNT(*) AS TOT_FACUL FROM TEACHER GROUP BY SUBJECT HAVING TOT_FACUL > 1
- iii) SELECT TNAME FROM TEACHER WHERE SEX = 'M' AND SALARY >= 70000 ORDER BY TCODE
- iv) SELECT MAX(SALARY) FROM TEACHER WHERE TCODE IN (5467,8976,3425) AND SUBJECT LIKE 'C%'

27. Write a function COUNT() in Python to read from a text file 'Gratitude.txt'and display the count of the words ending with letter 'e' in each line

Example: If the file content is as follows:

Gratitude is a humble heart's radiant glow, A timeless gift that nurtures and bestows. It's the appreciation for the love we're shown, In moments big and small, it's truly known.

The COUNT() function should display the output as:

Line 1:2 Line 2:0 Line 3:3 Line 4:0

OR

Write a function VOWEL_WORDS which reads a text file TESTFILE.TXT and then count and display the number of words starting with vowels 'a' or 'u' (including capital cases A and U too)

For example is the text in the file TESTFILE.txt is:

The train from Andaman has earned the name 'Floating Train'. What is so unique about this train to receive such a name?

The expected output is:

3

СОМ	PANY given le : Event Event Wede Birthe Engag Wede Farev	tName ding day Bash gement ding well	Date 26/10/2019 05/11/2019 13/11/2019 01/12/2019 25/11/2019	Orga 1004 1002 1004 1003 1001	700 700 200 800	dget 0000 000 0000 0000	3
EventId 101 102 103 104 105 Table : Comport Componition of the componi	Event Wedd Birth Engal Wedd Farev	ding day Bash gement ding vell	26/10/2019 05/11/2019 13/11/2019 01/12/2019 25/11/2019	1004 1002 1004 1003	700 700 200 800	0000 000 0000	
101 102 103 104 105 Table : Comp OrganizerIo	Wedd Birth Enga Wedd Farev	ding day Bash gement ding vell	26/10/2019 05/11/2019 13/11/2019 01/12/2019 25/11/2019	1004 1002 1004 1003	700 700 200 800	0000 000 0000	
102 103 104 105 Table : Comp OrganizerIo	Birtho Enga Wedo Farev	day Bash gement ding well	05/11/2019 13/11/2019 01/12/2019 25/11/2019	1002 1004 1003	700 200 800	0000	- - - -
103 104 105 Table : Comp OrganizerIo 1001	Enga Wedd Farev	gement ding vell	13/11/2019 01/12/2019 25/11/2019	1004 1003	200 800	0000	- - -
104 105 Fable : Comp OrganizerIo 1001	Wedd Farev Dany	ding vell	01/12/2019 25/11/2019	1003	800	0000	
Table : Comp OrganizerId 1001	Farev	vell	25/11/2019	1001	200	000	11
Organizerlo 1001	-	Na					
1001	1	Na			- N		_
		D-	ime tor		Phone		
TUUZ		-	ter		9745684122		-
1003		+	enry nith		9468731216 9357861542		-
1003		Fr			9357861542		-
Naina creates a table STUDENTS with a set of records to maintain the profile of her students. After the creation of the table, she entered data of 4 students in the table. She makes ADMNO as the primary key of the table.						3	
Hakes ADIVI	- p.						
			1	DALC	455556	DUCNE	,
ADMNO	NAME	CLASS	SEC	RNO	ADDRESS	PHONE	
ADMNO 1211	NAME MEENA	CLASS 12	SEC D	4	A-26	3245678	
ADMNO	NAME	CLASS	SEC	+			
i	i) SELECT M. ii) SELECT Ex OrganizerId v) SELECT N OrganizerId; (b) Write	i) SELECT MAX(Date), Milii) SELECT EventName, N DrganizerId AND Budget v) SELECT Name, Date Ff DrganizerId; (b) Write a command	(b) SELECT MAX(Date), MIN(Date) FI (i) SELECT EventName, Name, Pho OrganizerId AND Budget<100000; (v) SELECT Name, Date FROM Even OrganizerId; (b) Write a command to view r	SELECT MAX(Date), MIN(Date) FROM Event; SELECT EventName, Name, Phone FROM Event, OrganizerId AND Budget<100000; SELECT Name, Date FROM Event, Company WHEI OrganizerId; (b) Write a command to view names of all datab	SELECT MAX(Date), MIN(Date) FROM Event; SELECT EventName, Name, Phone FROM Event, Company OrganizerId AND Budget<100000; SELECT Name, Date FROM Event, Company WHERE Phone OrganizerId; (b) Write a command to view names of all database in My Naina creates a table STUDENTS with a set of records to maint	ii) SELECT EventName, Name, Phone FROM Event, Company WHERE Organize Organizerld AND Budget<100000; v) SELECT Name, Date FROM Event, Company WHERE Phone like '%5_2' AND Organizerld; (b) Write a command to view names of all database in MySQL server. Naina creates a table STUDENTS with a set of records to maintain the profile or	SELECT MAX(Date), MIN(Date) FROM Event; SELECT EventName, Name, Phone FROM Event, Company WHERE Organizer = OrganizerId AND Budget<100000; SELECT Name, Date FROM Event, Company WHERE Phone like '%5_2' AND Organizer = OrganizerId; (b) Write a command to view names of all database in MySQL server. Naina creates a table STUDENTS with a set of records to maintain the profile of her

	For example: If the file stores the following data in binary format	
32.	Consider a binary file 'STUDENTS.DAT' that stores information about students using a tuple with the structure (StudentID, StudentName, Course, GPA). Write a Python function 'high_gpa_students' to read the contents of 'STUDENTS.DAT' and display details of students with a GPA higher than 3.5. Additionally, calculate and display the total count of such high-GPA students.	4
	The function should read the CSV file, processes the data, and displays the row with the highest performance rating. Assume that all employees have distinct performance ratings.	
	data stored in a CSV file named "performance_records.csv." The file contains information about employees, their projects, and performance ratings structured as follows: Employee_ID, Employee_Name, Project_ID, Project_Name, Performance_Rating A01, Bijesh Mehra, P101, ProjectX, 4.5 B02, Vikram Goel, P102, ProjectY, 3.8 C09, Suraj Mehta, P103, ProjectZ, 4.2	
31.	SECTION D (8 Marks) Create a Python function named 'highest_performer()' to analyze employee performance	4
	104 101 Stack Empty	
	After executing 'Pop_projects()', the output should be:	
	After executing Push_projects(), Proj_Stk should contain [101, 104].	
	emp_dict = {101: (True, True, True), 102: (False, True, True), 103: (True, True, False), 104: (True, True, True), 105: (False, False, False)}	
	If the dictionary 'emp_dict' contains the following data:	
	For example:	
	order and print them. If the stack is empty, it should display 'Stack Empty.' Call both functions to execute queries.	
	into the stack 'Proj_Stk' who have successfully completed all three projects. (ii) Pop_projects(Proj_Stk): This function should remove all elements from the stack in LIFO	
	(i) Push_projects(Proj_Stk, Emp_dict): This function should push the IDs of those employees	
	Proj2, Proj3) for each employee. Write a Python program with the following user-defined functions to perform operations on a stack named 'Proj_Stk':	

	(1, 'SURAJ', 'BCA', 6.2)	
	(2, 'RAVI', 'MCA', 3.0)	
	(3, 'KRISH', 'BSC', 7.5)	
	Then the function should display :	
	Student Id: 1	
	Student Id : 3	
	Total Students scoring high GPA: 2	
	Total Students scoring riight GPA . 2	
	SECTION E (15 Marks)	
33	ABC Media Services Ltd is an event planning organization. It is planning to set up its India	5
	campus in Mumbai with its head office in Delhi. The Mumbai campus will have four	
	blocks/buildings - ADMIN, DECORATORS, FOOD, and MEDIA.	
	You as a network expert need to suggest the best network-related solutions for them to	
	resolve the issues/problems mentioned in points (i) to (v), keeping in mind the distances	
	between various blocks/buildings and other given parameters.	
	MUMBAI	
	ADMIN	
	ADMIN	
	FOOD	
	MEDIA HEAD OFFICE	
	STILE /	
	DECORATORS	
	Shortest distance between various buildings:	
	FROM – TO. DISTANCE	
	ADMIN TO DECORATORS 90 meters	
	ADMIN TO MEDIA. 75 meters	
	ADMIN TO FOOD 50 meters	
	DECORATORS TO FOOD. 65 meters	
	FOOD TO MEDIA. 45 meters	
	DELHI Head Office to Campus. 1475 KM	
	MUMBAI	
		_
		5
	The number of computers at various buildings is as follows:	
	BUILDING. NUMBER OF COMPUTERS	
	ADMIN 110	
	DECORATORS 75	
	MEDIA. 12	
	FOOD. 20	
	I) Suggest the most appropriate location of the server inside the MUMBAI campus (out	
	of the 4 buildings). Justify your answer.	
	II) Draw the cable layout to efficiently connect various buildings within the MUMBAI	
	campus.	
		1

	III) Which hardware device will you suggest to connect all the computers within each building?	
	IV) Which of the following will you suggest to establish online	
	face-to-face communication between the people in the Admin Office	
	of the MUMBAI campus and the DELHI Head Office?	
	a. Cable TV	
	b. Email	
	c. Video Conferencing	
	d. Text Chat	
	V) What type of network (out of PAN, LAN, MAN, WAN) will be set up	
	in each of the following cases?	
	a. The Mumbai campus gets connected with the Head Quarter in Delhi	
ı	b. The computers connected in the MUMBAI campus	
34	i) Mention Any two differences between seek() and tell()	2+3
J - r	ii) Consider a file `BOOKS.DAT` containing multiple records. The structure of each record is as	- '
	follows:	
	[ISBN, Title, Author, Price, Genre]	
	Write a Python function named `copy_books` that copies all records from `BOOKS.DAT`	
	where the genre is 'Mystery' into a new file named `MYSTERY_BOOKS.DAT`.	
	OR	
	i) Mention any two difference between binary and csv files ?	
	ii) Consider a Binary file `MOVIES.DAT` containing a dictionary with multiple elements. Each	
	element is in the form `MNO:[MNAME, MTYPE, RATING]` as a key:value pair where:	
	- `MNO` – Movie Number	
	- `MNAME` – Movie Name	
	- `MTYPE` - Movie Type	
	- `RATING` – Movie Rating	
	Write a user-defined function, `find_high_rated_movies(rating)`, that accepts a rating as a	
	parameter and displays all records from the binary file `MOVIES.DAT` where the movie	
	rating is more than or equal to the rating value passed as a parameter.	
35	i) Define Primary Key Constraint with a suitable example.	5
	ii) Marie is working with a database named EMPLOYEES, which includes a table named	
	SALARIES. The SALARIES table has the following structure:	
	- `EmplD` (Employee ID) - integer	
	- `EmpName` (Employee Name) - string	
	- `Salary` (Employee Salary) - float	
	- `Department` (Employee Department) - string	
	Marie needs your help to update the salary for a specific employee based on user input.	
	Below is the Python code snippet she has written so far:	
	import mysql.connector as mysql	
	# Complete the connection details	
	con1 = mysql (host='localhost', user='root', password='password123',	
	database='EMPLOYEES') # Statement-1	1
	# Write the statement to create the cursor object	
	mycursor = # Statement-2	

emp_name = input("Enter the employee name to update the salary: ")	
new_salary = float(input("Enter the new salary: "))	
# Complete the statement to update the salary for a specific employee	
query = # Statement-3	
mycursor.execute(query)	
# Complete the statement to save the changes in the table	
con1. () # Statement-4	
print('Salary Updated successfully')	
con1.close()	
Now, answer the following questions:	
a) Complete statement 1 to establish the connection with the database.	
b) Write statement 2 to create the cursor object.	
c) Complete statement 3 to update the salary for a specific employee based on the user	
input.	
d) Complete statement 4 to save the changes in the table.	
OR	
i) Write One difference between primary key and unique key ?	
ii) A table named `EMPLOYEES` is created in a database named `COMPANY`. The table	
·	
contains multiple columns whose details are as shown below:	
- `EmpID` (Employee ID) - integer	
- `EmpName` (Employee Name) - string	
- `Salary` (Employee Salary) - float	
- `Department` (Employee Department) - string	
Note the following to establish connectivity between Python and MySQL:	
- Username: root	
- Password: password123	
- Host: localhost	
Tiose loculitose	
However, the table is to be interfaced with Python to perform certain tasks. The incomplete	
code is given below:	
code is given below.	
income at the first term of th	
import # Line1	
con1 = mysql.connect(host='localhost', user='root', password='password123',	
database='COMPANY')	
mycursor = con1 # Line2	
# iii. Complete the query given in Line 3 to display details of all such employees from the	
table EMPLOYEES	
# whose salary is more than 50000.	
query = 'SELECT * FROM EMPLOYEES where Salary > {}'.format() # Line 3	
mycursor.execute(query)	
data = mycursor # Line 4	
for you in date.	
for rec in data:	
print(rec)	
con1.close()	

- i. Complete line 1 to import the appropriate module.
- ii. Complete Line 2 to create the cursor object.
- iii. Complete the query given in Line 3 to display details of all such employees from the table EMPLOYEES whose salary is more than 50000.
- iv. Complete Line 4 to extract all the records