Sample Question Paper-3

COMPUTER SCIENCE

Class-XII, Session: 2023-24

SOLVED

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

General Instructions:

(i) Please check this question paper contains 35 questions.
(ii) The paper is divided into 5 Sections-A, B, C, D and E.
(iii) Section A, consists of 18 questions (1 to 18). Each question carriers 1 Mark.
(iv) Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
(v) Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
(vi) Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
(vii) Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
(viii) All programming questions are to be answered using Python Language only.

Section – A

1. **State True or False:**

`range(-1,-5)` returns values `-1,-2,-3,-4`. **[1]**

2. Rathin wants to create a table Players with a column playerid which should carry non null and unique values. Which constraint has to be given to the column?

(A) Primary key (B) Not null
(C) Default (D) Check **[1]**

3. Which one of the following is a valid Python if statement?

```
6 * 3 + 4**2 // 5 - 8
```

(A) 13 (B) 14
(C) 12 (D) 11 **[1]**

4. Write the output of the code given below:

```
my_dict = {"name": "Aman", "age": 26}
my_dict['age'] = 27
my_dict['address'] = "Delhi"
print(my_dict.items())
```

(A) `dict_items([('name', 'Aman'), ('age', 27), ('address', 'Delhi')])`
(B) `dict_keys([('name', 'Aman'), ('age', 27), ('address', 'Delhi')])`
(C) `dict_values([('name', 'Aman'), ('age', 27), ('address', 'Delhi')])`
(D) None of these **[1]**

5. A table `Student` has 15 columns and 100 rows. 10 rows are added later. What is the degree and cardinality of the table now?

(A) Degree : 5 , Cardinality : 110 (B) Degree : 15 , Cardinality : 110
(C) Degree : 10 , Cardinality : 90 (D) Degree : 150 , Cardinality : 90 **[1]**

6. ABC Incorporation has its 3 offices in the city of lucknow, connected together in a network. These offices are separated by a distance of approximately 45-50KM. Which kind of network is formed?

(A) PAN (B) WAN
(C) MAN (D) LAN **[1]**

7. Given is a Python string declaration: `myexam="@@CBSE Examination 2022@@"` Write the output of:

```
print(myexam[::-2])
```

(A) `20 otnx SC@` (B) `@20 mx S@` [1]
(C) `@20 otnmx SC@` (D) `@120 otnmx sc@`

8. Consider following list for python language `L=[13, 3.45, "Tree", 'Amar', [10, 8.91, "Apple"], 456]`

The output of `L[-2]` will be.

(A) `(10, 8.91, 'Apple')` (B) `[10, 8.91, 'Apple']` [1]
(C) `(10, 8.91, 'Apple')` (D) None of these

9. Which output lines of the following program will print the same results?

```
tup1 = (10, 20, 30, 40, 50, 60, 70, 80, 90)
print(tup1[5:-1])     # 1
print(tup1[5])        # 2
print(tup1[5:])       # 3
print(tup1[-4:8])     # 4
```

(A) (1) and (2) (B) (1) and (4) [1]
(C) (2) and (3) (D) (1), (3) and (4)

10. 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 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#** [1]

11. **Fill in the blank:**

The protocol used for remote login is_____

(A) FTP (B) Telnet
(C) HTTP (D) IRCP [1]

12. Given the following code . What should be filled in the missing statement for proper execution of the code.

```
def  reverse(n) :  #Function to display the reverse of the number in the parameter
       while n>0:
             d=n%10
             rev=_________ + d
             n//=10
       print("Reverse:" ,rev)
```

(A) `rev/10` (B) `rev*10`
(C) `rev//10` (D) `rev+10` [1]

13. **State True or False:**

The code that may generate an exception, has to be kept inside the try block. [1]

14. Which of the following refers to the attribute that can uniquely identify tuples within the relation?

(A) Foreign key (B) Consolidate key
(C) Alternate Key (D) Primary key [1]

15. **Fill in the blank:**

_____switching technique follows the store and forward mechanism. [1]

16. Which of the following statements opens a csv file "stock.csv" for writing records into it?

(A) `f=open("stock.csv","w")` (B) `f=open("stock.csv","wb")`
(C) `f=open("stock.csv","ab")` (D) `f=open("stock.csv","r")` [1]

Assertion and Reason:

In the following questions, A statement of Assertion (A) is followed by a statement of Reason (R). Mark the correct choice as.

(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 correct explanation of A.
(C) A is true but R is false.
(D) A is false but R is true.

17. **Assertion (A):** A function is a block of organized and reusable code that is used to perform a single, related action.
Reason (R): Function provides better modularity for your application and a high degree of code reusability. **[1]**

18. **Assertion (A):** Text file stores information in ASCII or unicode characters.
Reason (R): In text file, there is no delimiter for a line. **[1]**

Section – B

19. (a) Assume that 50 employees are working in an organization. Each employee has been allotted a separate workstation to work. In this way, all computers are connected through the server and all these workstations are distributed over two floors. In each floor, all the computers are connected to a switch. Identify the type of network?

(b) Given below are two addresses.
(i) http://www.abc.com/index.htm
(ii) 182.68.9.165
Identify which one of the above is an IP address and which one is a URL? **[2]**

OR

(a) Expand the following terms:
TCP/IP, FTP

(b) Write any two differences between twisted pair cable and coaxial cable.

20. Asish has written the following code , but I am getting some errors while executing it. Rewrite the correct code removing all the errors.

```
Value=30
for val in range(0,Value)
  if val%4==0
    print (val*4)
  else if val%5==0:
    print (val+3)
  else
    print(val+10)
```

[2]

21. Write the definition of a method `ZeroEnding (SCORES)` to add all those values in the list of `SCORES`, which are ending with zero (0) and display the sum. A I

For example:
If the SCORES contain `SCORES = [200, 456, 300, 100, 234, 678]`
The sum should be displayed as `600` **[2]**

OR

Write a function namely `big(LstStr)` that receives a list of strings and displays those strings that start and end with a lowercase vowel.

22. **Identify the output of the following Python statements:** A I

```
L1, L2 = [10, 15, 20, 25], []
for i in range (len(L1)) :
  L2. insert(i,L1.pop())
  print (L1, L2,sep="&")
```

[2]

23. Write the Python statement for each of the following tasks using BUILT-IN functions/methods only: **[2]**

(i) To add a key : value pair `"Email": "sbc@gmail.com"` to the dictionary `Empdict`.

(ii) To replicate a list `Lstnames=["Sonia","Rahul",Siksha"] , 5 times`

OR

Write the output of the following Python code:

```
i=5
j=7
```

```
x=0
i=i+(j-i)
x=j+i
print(x,":",i)
j=j**2
x=j+i
i=i+1
print(i,":",j)
```

24. Abhijit has written a query to increase the marks of students of "Science" stream students by 5. But he is not getting the correct output. Help him by the correct query.
Table `Student :[Admno , Name , Class , Stream , Marks,DtofAdm]`
Query : " Modify student change `Marks=Marks+ 5` where Stream equals "Science"
Then after write a query to remove the column stream from the table. [2]

OR

Differentiate between char(n) and varchar(n) data types with respect to databases.

25. Find the output of the following code.

```
def displayString()
   p = None
   q = 0
   r = ""
   s = "None"
   if (p == q):
         print ("None is the same as 0")
   elif (p == r):
         print ("None is the same as empty string")
   elif (p == s):
         print ("None is the same as the string 'None'")
   else:
         print ("None of the above")
   displayString()
```

[2]

Section – C

26. What will be the output of the following code if the input is bccabc

```
string = input ("Enter a string:")
count = 3
while True:
   if string [0] == 'a':
      string = string [2:]
   elif string [-1] == 'b':
      string = string [:2]
   else :
      count + = 1
      break
print (string)
print (count)
```

[3]

27. Write the outputs of the following SQL queries :

Table : Emp

Eno	Ename	Dept	Desig	DtofJoin	Salary
1	Jack	Sales	MGR	2012-09-12	89000
2	Priya	Accts	MGR	2005-04-22	56000
3	Ria	Pers	Clerk	2000-01-09	25000
4	Anil	Pers	Officer	1994-04-03	67000
5	Sumit	Sales	Officer	NULL	19000
6	Akash	Sales	Officer	NULL	20000

[3]

(a) `Select dept, sum(sal) from emp group by dept;`
(b) `Select desig, count(*) from emp group by desig;`
(c) `Select desig, count(*) from emp group by desig having count(*)>1;`

28. Write a function in Python that counts the number of "Me" or "My" words present in a text file "STORY.TXT". If the "STORY.TXT" contents are as follows: A I

My first book
was Me and
My Family. It
gave me
chance to be
Known to the
world.

The output of the function should be:
Count of Me/My in file: **[3]**

OR

Write a function to count the number of lines starting with a digit in a text file "Diary.txt".

29. Consider the table Teacher given below: A I

Table : Teacher

T_ID	NAME	Age	Department	Date_of_join	Salary	Gender
1	Arunan	34	Coupter Sc	2019-0110	12000	M
2	Saman	31	History	2017-03-24	20000	F
3	Randeep	32	Mathematics	2020-12-12	30000	M
4	Samira	35	History	2018-07-01	40000	F
5	Raman	42	Mathematics	2021-09-05	25000	M
6	Shyam	50	History	2019-06-27	30000	M
7	Shiv	44	Computer Sc	2019-02-25	21000	M
8	Shalakha	33	Mathematics	2018-07-31	20000	F

Based on the table write SQL queries for the following :

(i) To display only names of teachers of "History" department.

(ii) To display the name , age and department of teachers whose name has "a" as the 2nd letter.

(iii) To increase the salary of Male teachers by 5% who are in "Computer Sc" department. **[3]**

30. Write a function in Python, `Push(SItem)` where , SItem is a dictionary containing the details of stationary items– `{Sname:price}`.

The function should push the names of those items in the stack who have price greater than 75. Also display the count of elements pushed into the stack.

For example:

If the dictionary contains the following data:

```
Ditem={"Pen":106,"Pencil":59,"Notebook":80,"Eraser":25}
```

The stack should contain

```
Notebook
Pen
```

The output should be:

```
The count of elements in the stack is 2
```

[3]

Section – D

31. Write SQL queries for (i) to (iv) based on the table School and Admin given below:

Table : School

CODE	TEACHER	SUBJECT	DOJ	PERIODS	EXPERIENCE
1001	RAVI SHANKAR	ENGLISH	12/3/2000	24	10
1009	PRIYA RAI	PHYSICS	03/09/1998	26	12
1203	LIS ANAND	ENGLISH	09/04/2000	27	5

1045	YASHRAJ	MATHS	24/8/2000	24	15
1123	GANAN	PHYSICS	16/7/1999	28	3
1167	HARISH B	CHEMISTRY	19/10/1999	27	5
1215	UMESH	PHYSICS	11/05/1998	22	16

TABLE: ADMIN

CODE	GENDER	DESIGNATION
1001	MALE	VICE PRINCIPAL
1009	FEMALE	COORDINATOR
1203	FEMALE	COORDINATOR
1045	MALE	HOD
1123	MALE	SENIOR TEACHER
1167	MALE	SENIOR TEACHER
1215	MALE	HOD

(i) To display each designation and count of each type for designations where count is <2.
(ii) To display the maximum experience.
(iii) To display names of teachers who have more than 12 years of experience in ascending order of teacher name.
(iv) To display teacher names and corresponding designations from both the tables. [4]

32. Rohini is a CS student and has been assigned by her teacher to write functions `ADD()` and `COUNTER()` for working with records of employees.

(i) `ADD()` – To accept and add data of an employee to a CSV file `'record.csv'`. Each record consists of a list with field elements as `empid`, `name` and `sal` to store employee id, employee name and employee salary respectively.
(ii) `COUNTR()` – To count the number of records present in the CSV file named `'record.csv'`. [4]

Section – E

33. Perfect Edu Services Ltd. is an educational organization. It is planning to setup its India campus at Karnataka with its head office at Delhi. The Karnataka Campus has 4 main buildings – ADMIN, ENGINEERING, BUSINESS and MEDIA. A I

You as a network expert have to suggest the best network related solutions for their problems raised in (i) to (v), keeping in mind the distances between the buildings and other given parameters.

Shortest distances between various buildings:

Admin to Engineering	55 mt
Admin to Business	90 mt
Admin to Media	90 mt
Engineering to Business	55 mt
Engineering to Media	90 mt
Business to Media	45 mt
Delhi Head office to Karnataka campus	2175 km

Number of computers installed at various buildings are as follows:

Admin	110
Engineering	75
Business	40
Media	12
Delhi Head office	20

(i) Suggest the most appropriate location of the server inside the Karnataka campus.
(ii) Draw the cable layout to efficiently connect various buildings within the Karnataka campus for connecting the computers.
(iii) Which hardware device will you suggest to be procured by the company to be installed to protect and control the internet uses within the campus?
(iv) Which of the following will you suggest to establish the online face to face communication between the people in the admin office of Karnataka campus and Delhi Head office.
(v) The organization is planning to link its sale counter situated in various part of the same city. Which type of network out of LAN, WAN, MAN will be formed?

34. (i) Write any two needs for a data file. [5]
(ii) A file `sports.dat` contains information about a formal Event Participant. A I

Write a function that would read contents from file `sports.dat` and creates a file named Athletics.dat copying only those records from `sports.dat` where the event name is "`Athletics`".

OR

(i) How will you open a text file btext.txt in write and read mode?

(ii) Arun, during Practical Examination of Computer Science, has been assigned to write a `search()` function to search a record in a pickled file `student.dat`. The File student.dat is created by his Teacher and the following information is known about the file.

- File contains details of students in `[rollno,name,marks]` format.
- File contains details of 10 students (i.e. from rollno 1 to 10) and separate list of each student is written in the binary file using `dump()`.

Help Arun in writing the code to search for the roll number passed to the function . [5]

35. (i) Define the term Cartesian product key with respect to RDBMS.

(ii) Write Python code to create a table Location with following fields

`id` → id of the location

`bldg_code` → code of the building

`room` → Type of rooms

`capacity` → capacity of the room [5]

OR

(i) Which keyword is used to sort the records of a table in descending order?

(ii) Consider the tables FACULTY and COURSES with structure as follows.

FACULTY	COURSES
F_ID	C_ID
FName	F_ID
LName	Cname
Hiredate	Fees
Salary	

Write Python codes to display details of these faculties whose salary is greater than 12000

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