

CLASS: XII
SESSION: 2024-25
COMPUTER SCIENCE (083)

Time allowed: 3 Hours

SET A

Max Marks: 70

General Instructions:

- This question paper contains 37 questions.
 - All questions are compulsory.
 - The paper is divided into 5 Sections- A, B, C, D and E.
 - All programming questions are to be answered using Python Language only.
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SECTION A (21*1=21 marks)

Q1 Fill in the blank

The explicit conversion of an operand to a specific type is called _____

Q2 Write output:

```
try:  
    x = 10 / 0  
except Exception:  
    print("zero error!")  
except ZeroDivisionError:  
    print("Division by zero error!")
```

a) Division by zero error! b) Some other error! c) Zero error! d) Nothing is printed

Q3 What will the following code do?

```
dict={'exam':'AISSCE','year':2025 }  
dict.update({'year':2026})
```

- (a) It will create new dictionary dict={'year':2026} and old dictionary will be deleted.
(b) It will throw an error and dictionary cannot be updated.
(c) It will make the content of dictionary as
dict={'exam':'AISSCE', 'year':2026 }
(d) It will throw an error and dictionary and do nothing.

Q4 What will be the value of the expression : 14+13%15

Q5 Write the output of the code:

```
a='Year 2025 at All the best than 2024'  
a=a.split('2')  
a=a[0]+'.'+a[1]+'.'+a[3]  
print(a)
```

Q6 Tuple represent a _____ in a table.

- (a) Attribute (b) Column
(b) Record (d) Vertical row

Q7 The correct output of the expression is:

True and not False or False

- (a) False (b) True (c) None (d) NULL

Q8 Fill in the blank:

_____ command is used to change table structure in SQL

- (a) Update (b) change (c) alter (d) modify

Q9 Which of the following statement would give an error after executing the following code?

```
s='Welcome to class XII'           #statement1
print(s)                           #statement2
s='Thank you'                       #statement3
s[0]='@'                            #statement4
s=s+'thank you'                     #statement5
```

- (a) statement 3 (b) statement 4 (c) statement 5 (d) statement 4 and 5

Q10 Which of the following python statement will bring the read pointer to 10th character from the end of a file containing 100 characters, opened for reading in binary mode.

- (a) file.seek(10,0) (b) file.seek(-10,2) (c) file.seek(-10,1) (d) file.seek(10,2)

Q11 What will be the output of the following code:

```
import statistics
statistics.mode([10, 20, 10, 30, 10, 20, 30])
```

Q12 In MySQL which type of value should not be enclosed within quotation marks>

- (a) DATE (b) VARCHAR (c) FLOAT (d) CHAR

Q13 Which function is used to display the total number of records from a table in a database?

- (a) total() (b) total(*) (c) return (*) (d) count(*)

Q14 _____ protocol is use to retrieve the mail.

Q15 Which of the following character acts as a default delimiter in a csv file?

- (a) (colon) : (b) (hyphen) - (c) (comma) , (d) (vertical line) |

Q16 Which of the following is not a legal method for fetching records from a database from within a Python program?

- (a) fetchone() (b) fetchtwo() (c) fetchall() (d) fetchmany()

Q17 State True or False

“ Tuple is datatype in Python which contain data in key-value-pair.”

Q18 What will be output of the following code:

```
d1={1:2,3:4,5:6}
d2=d1.popitem()
print(d2)
```

- (a) {1:2} (b) {5:6} (c) (1,2) (d) (5,6)

Q19 The method seek() returns

- (a) An integer (b) a file object (c) a record (d) None

Q20 and Q21 are ASSERTION and REASONING based questions. 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 the correct explanation of A
- (c) A is True and R is False
- (d) A is False and R is True

Q20 Assertion (A): If the arguments in a function call statement match the number and order of arguments as defined in the function definition, such arguments are called positional arguments.

Reasoning (R) : During a function call, the argument list first contains default argument(s) followed by positional argument(s).

Q21 Assertion (A): We can retrieve records from more than one table in MySQL.

Reasoning (R) : Foreign key is used to establish a relationship between two tables.

SECTION B (7*2=14 marks)

Q22 Preety has written a code to add two numbers. Her code is having errors. Rewrite the correct code and underline the corrections made

```
Def sum(arg1,arg2):
    total=arg1+arg2;
    print('Total:', total)
return

total;
sum(10,20)
print('Total:',total)
```

Q23 (a) Explain the use of 'Foreign Key ' in a Relational Database Management System.

Give example to support your answer.

(b) Differentiate between where and having clause

Q24 Consider the following dictionaries , D and D1

D={ 'Suman':40,"Raj":55,"Raman":60 }

D1={"Aditi" : 30, "Amit " :90 , "Raj " : 20 }

(i) Write a statement to display / return the value corresponding to the key "Raj" in the dictionary D.

(ii) Write a statement to delete the item with the given key "Amit" from the dictionary D1.

Q25 (a) Expand the following terms: HTTPs and TCP/IP

(b) Differentiate between BUS and STAR topology.

Q26 Write a function lenWords(String), that takes a string as an argument and returns a tuple containing length of each word of a string. For example, if the string is "Come let us have some fun", the tuple will have(4,3,2,4,4,3)

Q27 What possible output from the given options is expected to be displayed when the following code is executed?

```
import random
Cards=['Heart','Spade','Club','Diamond']
for i in range(2):
    print(Cards[random.randint(1,i+2)],end='#')
```

- (a) Spade#Diamond# (b) Spade#Heart# (c) Diamond#Club# (d)Heart#Spade#

Q28 Predict the output of the following code:

```
p=5
def sum(q,r=2):
    global p
    p=r+q**2
    print(p, end= '#')

a=10
b=5
sum(a,b)
sum(r=5,q=1)
```

SECTION-C (3 x 3 = 9 Marks)

Q29 Write a function COUNT_AND() in python to read the text file 'COMPUTER.TXT' and count the number of times 'AND' occurs in the file.(include AND/and/And in the counting)

Q30 A list containing records of products as

L = [("Laptop", 90000), ("Mobile", 30000), ("Pen", 50), ("Headphones", 1500)]

Write the following user-defined functions to perform operations on a stack named Product to:

- (a) Push_element() – To push an item containing the product name and price of products costing more than 50 into the stack.

Output: [('Laptop', 90000), ('Mobile', 30000), ('Headphones', 1500)]

- (b) Pop_element() – To pop the items from the stack and display them. Also, display "Stack Empty" when there are no elements in the stack.

Output:

('Headphones', 1500)

('Mobile', 30000)

('Laptop', 90000)

Stack Empty

Q31 What will be the output of the following code:

```
def display(str):
    m=""
    for i in range(0,len(str)):
        if(str[i].isupper()):
            m=m+str[i].lower()
        elif str[i].islower():
            m=m+str[i].upper()
        else:
            if i%2==0:
                m=m+str[i-1]
            else:
                m=m+"#"
    print(m)

s= 'Happy Birthday'
display(s)
```

SECTION-D (4 x 4 = 16 Marks)

Q32 Write the output of the queries (a) to (d) based on the relations

Table: Stationary

S_ID	StationaryName	Company	Price
DP01	Dot Pen	ABC	10
PL02	Pencil	XYZ	6
ER05	Eraser	XYZ	7
PL01	Pencil	CAM	5
GP02	Gel Pen	ABC	15

Table: Consumer

C_ID	ConsumerName	Address	S_ID
1	Good Learner	Delhi	PL01
6	Write Well	Mumbai	GP02
12	Topper	Delhi	DP01
15	Write & Draw	Delhi	PL02

- (a) Select count(distinct address) from consumer;
 (b) Select company,max(Price),Min(Price),Count(*) from Stationary group by company;
 (c) Select Consumer,consumerName,Stationary.StationaryName,Stationary.Price from stationary,consumer where consumer.S_ID=stationary.S_ID;
 (d) Select avg(price) from stationary where stationaryName like '%n%';

Q33 Write a program in python that defines and calls the following user defined functions:

(i) add()- to accept the add data of furniture to a CSV file 'furddata.csv'. Each record consists of a list with field elements as fid,fname and price to store furniture id, furniture name and furniture price respectively.

(ii) search()- to display the records of the furniture whose price is more than 10000

Q34 Write SQL commands for the following queries (a) to (d) based on the relation Trainer and Course given below:

TRAINER

TID	TNAME	CITY	HIREDATE	SALARY
101	SUNAINA	MUMBAI	1998-10-15	90000
102	ANAMIKA	DELHI	1994-12-24	80000
103	DEEPTI	CHANDIGARH	2001-12-21	82000

104	PRABHA	DELHI	2002-12-25	78000
105	RICHA	MUMBAI	1996-01-12	95000
106	MANIPRABHA	CHENNAI	2001-12-12	69000

COURSE

CID	CNAME	FEES	STARTDATE	TID
C201	AGDCA	12000	2018-07-02	101
C202	ADCA	15000	2018-07-15	103
C203	DCA	10000	2018-10-01	102
C204	DDTP	9000	2018-09-15	104
C205	DHN	20000	2018-08-01	101
C206	O LEVEL	18000	2018-07-25	105

- (a) Display the trainer name, city and salary in descending order of their hiredate.
- (b) To display the TNAME and CITY of trainer who joined the institute in the month of December 2001.
- (c) To display TNAME, HIREDATE, CNAME, STARTDATE from tables TRAINER and COURSE of all those courses whose fees is less than or equal to 10000.
- (d) To display number of trainers from each city.

Q35 MySQL database named **WareDB** has a **p_inventory** table in MySQL which contains the following attributes:

- I_code: Item code (Integer)
- P_name: Name of product (String)
- Qty: Quantity of product (Integer)
- Cost: Cost of product (Integer)

Consider the following details to establish Python-MySQL connectivity:

- Username: ad_user
- Password: wareh2025
- Host: localhost

Write a Python program to change the Quantity of the product cost to 43 whose Item_code is 108 in the p_inventory table.

SECTION-E (2 x 5 = 10 Marks)

Q 36 A file PASSENGER.DAT, stores the records of passengers using the following structure:

[PNR,Pname,BRDSTN,DESTN,FARE]

PNR-passenger number(string type)

Pname- passenger name(string type)

BRDSTN- boarding station name (string type)

DESTN- destination station name(string type)

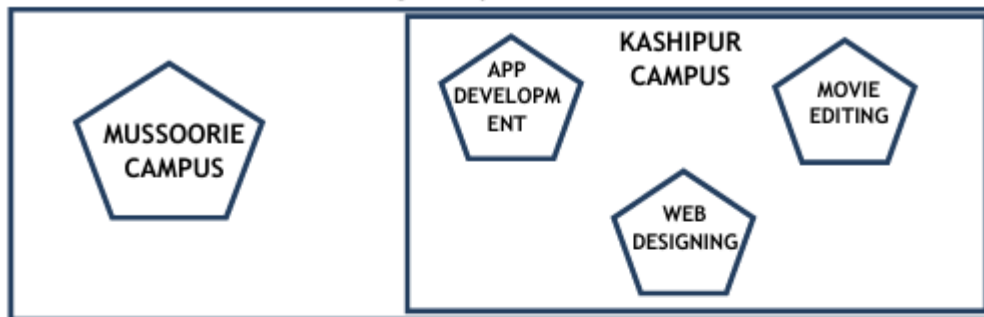
FARE- fare amount for the journey(float type)

Write user defined function in Python for the following tasks:

- (a) Create()-to input data for passengers and write it in the binary file PASSENGER.DAT

- (b) SearchDestn(D)- to read contents from the file PASSENGER.DAT and update information of those passengers whose DESTN matches with the value of D.

Q37 MakeInIndia Corporation, an Uttarakhand based IT training company, is planning to set up training centres in various cities in next 2 years. Their first campus is coming up in Kashipur district. At Kashipur campus, they are planning to have 3 different blocks for App development, Web designing and Movie editing. Each block has number of computers, which are required to be connected in a network for communication, data and resource sharing. As a network consultant of this company, you have to suggest the best network related solutions for them for issues/problems raised in question nos. (i) to (v), keeping in mind the distances between various blocks/locations and other given parameters.



Distance between various blocks/locations:

Block	Distance
App development to Web designing	28 m
App development to Movie editing	55 m
Web designing to Movie editing	32 m
Kashipur Campus to Mussoorie Campus	232 km

Number of computers

Block	Number of Computers
App development	75
Web designing	50
Movie editing	80

- Suggest the most appropriate block/location to house the SERVER in the Kashipur campus (out of the 3 blocks) to get the best and effective connectivity. Justify your answer.
- Suggest a device/software to be installed in the Kashipur Campus to take care of data security.
- Suggest the best wired medium and draw the cable layout (Block 1 1 1 KASHIPUR CAMPUS APP DEVELOPMENT MOVIE EDITING MUSSOORIE CAMPUS WEB DESIGNING 10 to Block) to economically connect various blocks within the Kashipur Campus.
- Suggest the placement of the following devices with appropriate reasons: a. Switch / Hub b. Repeater
- Suggest a protocol that shall be needed to provide Video Conferencing solution between Kashipur Campus and Mussoorie Campus.