COMMON PRE-BOARD EXAMINATION

COMPUTER SCIENCE-Code No. 083

Class-XII-(2025-26)

SET: 2

Time allowed: 3 Hrs. **Maximum Marks: 70**

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.

Q. No.	Section-A (21 x 1 = 21 Marks)	Marks

1.	Write the output of the following Python code:
	`for num in range(10, 0, -3):`
	`  print(num, end='#')`
		1

2.	What will be the output of the following Python statement? `print( 300 - 2**2**3 + 26 // 3 - 18 % 5)`	1
3.	Consider the given SQL Query: SELECT * FROM EMPLOYEE WHERE COMMISSION = NULL; Ritu is executing the query but not getting the correct output. Write the correction.	1
4.	Given the following Python dictionary: Day={1:'PACIFIC', 2: 'ARCTIC', 3: 'ATLANTIC'} Which statement will return 'ARCTIC'? a) Day.pop( ) b) Day.pop(2) c) Day.pop(1) d) Day.pop('ARCTIC')	1
5.	In SQL, a relation 'STUDENT' has 9 rows and 5 columns. If 3 rows and 2 columns are deleted from this relation, what will be the new cardinality of the relation STUDENT? a) Cardinality: 7 b) Cardinality: 2 c) Cardinality: 6 d) Cardinality: 3	1

6. Consider the Python statements given below and then choose the correct output from the given options: 1

```
X='7'
try:
   print(X+'DAYS' , end='#')
except:
   print('ERROR',end='#')
finally:
   print('FINISH')
```

a) 7DAYS#FINISH b) ERROR#FINISH c) ERROR# d) 7DAYS

7. Predict the output of the following Python statements : 1

```
import statistics as s
print(s.mode([30, 40, 10, 30, 10, 10, 30, 30]))
```

a) 10 b) 20 c) 30 d) 23.75

8. Consider the given expression: 1

```
print(9<10 and 50<7 or 18<6 and not 4<14)
```

Which of the following will be the correct output of the given expression?

a) True b) False c) NONE d) NULL

9. Which command is used to view the list of tables in a database? 1

10. What is the output of the following Python code? 1

```
x="EXAMINATION25"
print(x[-2:2:-2])
```

a) 2OTNM b) XMIAI c) 2INA d) 2OTNMX

11. Which of the following is a DML command in SQL? 1

a) CREATE b) DROP c) ALTER d) UPDATE

12. _____is a communication methodology designed to deliver both voice and multimedia communications over Internet protocol. 1

a) HTTP b) VoIP c) SMTP d) TELNET

13. Which network device is used to connect two networks that use different protocols? 1

a) Router b) Repeater c) Modem d) Gateway

14. What is a URL, and what is its primary function in networking? 1

a) A system designed to prevent unauthorized access.
b) A web browsing Software to navigate the internet.
c) An address to locate a resource on the internet.
d) A language for creating web pages.

15. Fill in the blank: 1

The SELECT statement when combined with _____ clause, returns records without repetition.

a) DESCRIBE b) UNIQUE c) NULL d) DISTINCT

16. Identify the correct possible output(s) of the following Python code. Also write the minimum and the maximum possible values of the variable first. 1

```
import random
L=[5,10,15,20,25,30]
for i in range(1,3):
    first=random.randint(2,5)-1
    sec=random.randint(3,6)-2
    third=random.randint(1,4)
    print(L[first], L[sec], L[third],sep="#")
```

a) 10#25#15
20#25#25

b) 5#25#20
25#20#15

c) 30#20#20
20#25#25

d) 30#15#25#
5#20#10#

17. Write the output of the following Python code: 1

```
x = 4
def callone():
    x = 2
    print(x, end='&')
def calltwo():
    global x
    x += 3
    print(x, end='@')
calltwo()
x = 6
callone()
print(x, end='$')
```

a) 7@2&2$ b) 7@6&6$ c) 7@2&6$ d) Error

18. What will be the output of the following Python code? 1

```
print("ComputerProgram".split("er",2))
```

a) ['Computer', 'Program'] b) ['Comput', 'Program']
c) ['Comput', 'erProgram'] d) ['Comput', 'er', 'Program']

19. State True or False: 1
"Python identifiers are dynamically typed."

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): Delete command is used to remove rows or records from the table. 1
Reasoning(R): This command is used to remove records along with structure of the table from database

21. Assertion (A): Python supports both positional and keyword arguments in functions. 1
Reasoning (R): Positional arguments are assigned based on their position in the function call, while keyword arguments are assigned based on the name of the parameter.

Q. No. **Section-B (7 x 2=14 Marks)**

22. Write the output displayed on execution of the following Python code : 2

```
LS=["LAVENDAR","GREEN","ORANGE","BLUE"]
D={}
for S in LS :
   if len(S)%4 == 0:
      D[S] = len(S)
for K in D :
   print(K,D[K], sep = "@")
```

23. (A) Ms. Shalini has just created a table named CAR containing columns CARID, MODEL, FUELTYPE. 2
Write suitable SQL commands to do the following :
(I) To add a column PRICE of type integer in the table CAR.
(II) To view the structure of the table CAR.

OR

(B) Define Primary key and Foreign key.

24. (A) Answer the following: 2
(I) Define the term Web hosting.
(II) Write one difference between circuit switching and packet switching.

OR

(B) Answer the following:
(I) Expand the following terms:
SMTP and PPP
(II) Give one difference between XML and HTML.

25. How is a mutable object different from an immutable object in Python? 2
Identify one mutable object and one immutable object from the following:
(1,2), [1,2], {1:1,2:2}, '123'

26. The Python code given below accepts a number as an argument and returns sum of all digits of a number. Observe the following code carefully and rewrite it after removing all syntax and logical errors. Underline all the corrections made. 2

```
Def SumOfDigits(num):
   s=0
   while num>0
      d = = num % 10
      s=s+d
      num //=10
      return s
print(SumOfDigits(1234))
```

27. (A) Write the Python statement for each of the following tasks using BUILT-IN functions/methods only : 2

(I) To delete an element 50 from the list LST1.

(II) To display the number of occurrences of the substring "is" in a string STR1. For example if the string STR1 contains "This is his book", then the output will be 3.

OR

(B) Predict the output of the following Python code:

```
S= "DigitalWorld"
A=S.partition("al")
print(A)
```

28. (A) Write a Python function ZeroEnding(SCORE) that returns the sum of all the values in the List SCORE which are ending with the number zero(0). 2

For example:
If the list SCORE contain [200, 456, 300, 100, 234, 678]
The sum should be displayed as 600

OR

(B) Write a Python function countCity(CITY) in Python, that takes the dictionary, CITY as an argument and displays the names (in uppercase) of the cities whose names are longer than 7 characters.

For example, Consider the following dictionary
CITY={1:"Sydney",2:"Tokyo",3:"Pinkcity",4:"Beijing",5:"Suncity"}
The output should be:
PINKCITY

Q. No. **Section-C (3 x 3 = 9 Marks)** **Marks**

29. A list named, CList contains following record of customer as list elements: 3
[Customer_name, RoomType, Advance]
Each of these records are nested together to form a nested list. Write the following user defined functions in Python to perform the specified operations on the stack named 'Hotel'

(I) Push_Cust(CList) – It takes the nested list as an argument and pushes a list object containing name and advance, of those customers who are staying in 'Delux' Room Type to the stack.

(II) Pop_Cust() – It pops the objects from the stack and displays them. Also, the function should display “Stack Empty” when there are no elements in the stack.

For example:
If the nested list contains the following data:
CList=[['Sunil','Delux',2000],['Mohan','Standard',1000],['Tarun','Delux',1500]]
The stack should contain:
['Tarun', 1500]
['Sunil', 2000]

The output should be:
['Tarun', 1500]
['Sunil', 2000]
Stack Empty

30. (A) Predict the output of the following Python code: 3

```
s='criCkeT25'
n = len(s)
m=' '
for i in range(0, n):
   if (s[i] >= 'a' and s[i] <= 'm'):
      m = m + s[i].upper()
   elif (s[i] >= 'n' and s[i] <= 'z'):
      m = m + s[i-1]
   else:
      m = m + '#'
print(m)
```

OR

(B) Predict the output of the following Python code:

```
data=["P",20,"Q",10,"R",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)
```

31. (A) Write a Python function govWeb() that displays all the words containing "gov.in" from a text file "URLs.txt". 3

OR

(B) Write and call a Python function COUNTLINES() to count the number of lines in a text file 'Notes.txt' which are starting with a digit.

Q. No. **Section-D (4 x 4 = 16 Marks)** **Marks**

32. Write a program in Python that defines and calls the following user defined functions: 4

(I) add() – To accept and add data of a toystore to a CSV file 'toydata.csv'. Each record consists of a list with field elements as tid, tname and tprice to store toy id, toy name and toy price respectively.

(II) search()- To display the records of the toys whose price is more than 500.

33. Suman has created a table named GAME in MYSQL database SPORTS: 4

Table GAME, has the following structure :

- GameID (Game ID)-varchar(5)
- Gname (Game name)-varchar(20)
- No_of_Participants (number of participants)- integer

Note the following to establish connectivity between Python and MySQL:

- Username - root
- Password - tiger
- Host - localhost

Write a Python program, to input the value of Game ID from the user and permanently delete the corresponding record from the GAME table.

34. Write SQL queries (I) to (IV) based on the relations **BOOK** and **ISSUED** given below: 4

TABLE :BOOK

CODE	BNAME	TYPE	PRICE	QTY
F101	Thunder bolts	Fiction	450	15
L102	German easy	Literature	700	10
C101	Tarzan in the lost world	Comic	250	20
F102	Untold Story	Fiction	600	40
C102	War Heroes	Comic	300	30

TABLE: ISSUED

MNO	MNAME	CODE	ISSUEDATE
M101	AMIT SHARMA	L102	2024-10-13
M103	RAVI VERMA	F102	2025-02-23
M102	SARITA GUPTA	C101	2025-06-16

(I) To display the records of all books in descending order of PRICE.

(II) To increase the price of all Comic books by 10% in the table BOOK.

(III) To display the TYPE and number of books in each TYPE from the table BOOK.

(IV) (A) To display the CODE, BNAME, MNAME and ISSUEDATE from the tables BOOK and ISSUED.

OR

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

35. Consider the table **HOSPITAL** as given below: 4

Table: HOSPITAL

Doc_ID	NAME	AGE	DEPARTMENT	CONSULTATION	GENDER
D101	Ankita	52	Surgery	800	F
D102	Kush	35	ENT	200	M
D103	Sameer	45	Cardiology	250	M
D104	Shilpa	40	ENT	300	F
D105	Ketaki	35	ENT	350	F
D106	Arun	30	Surgery	500	M

(A) Write the SQL queries for the following:

(I) Add a constraint, primary key to a column Doc_ID in the table HOSPITAL.

(II) To display the records of doctors whose name starts with 'S'.

(III) To display the highest consultation fee among all male doctors.

(IV) To display name and age of all the doctors whose age is between 45 and 60. (both values inclusive)

OR

(B) Write the output of the following SQL queries:

(I) SELECT DEPARTMENT, COUNT(*) FROM HOSPITAL
GROUP BY DEPARTMENT HAVING COUNT(*) >2 ;

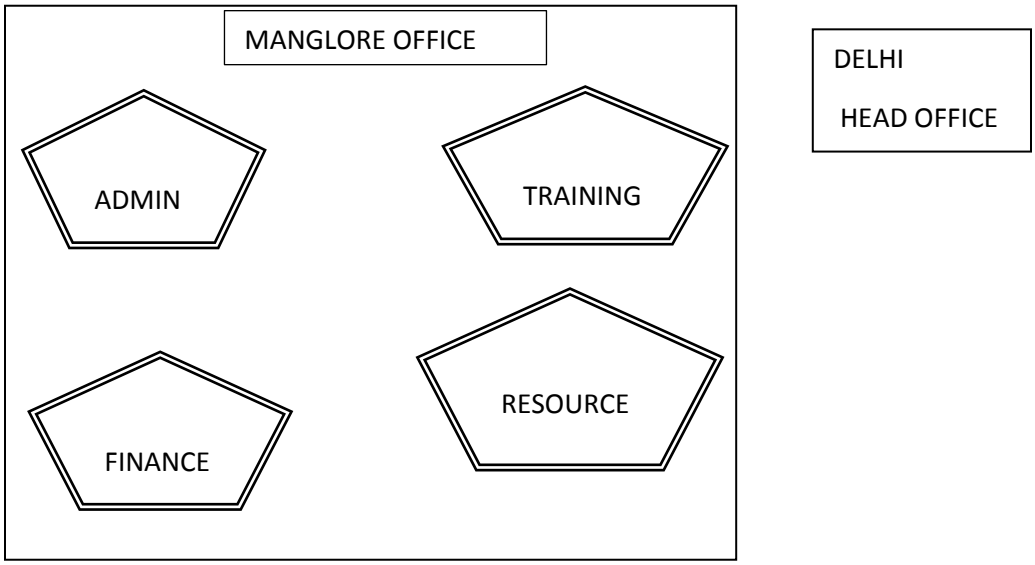
(II) SELECT SUM(CONSULTATION) FROM HOSPITAL
WHERE DEPARTMENT="Surgery";

(III) SELECT NAME,CONSULTATION FROM HOSPITAL
WHERE CONSULTATION>500 AND NAME Like "%a" ;

(IV) SELECT Doc_ID, NAME FROM HOSPITAL
WHERE DEPARTMENT IN("Cardiology", "Surgery") ;

Q. No. **Section-E (2 X 5 = 10 Marks)** **Marks**

36. Hitech Info Limited, an IT based firm, located in Delhi has set up its new centre at Mangalore. The Manglore office has 4 buildings as shown in the diagram below: 5



Number of computers in each building is as follows:

ADMIN Building	25
FINANCE Building	50
TRAINING Building	150
RESOURCE Building	10

Centre to centre distances between various buildings is as follows:

ADMIN to FINANCE	50 m
FINANCE to TRAINING	150 m
TRAINING to RESOURCE	25 m
ADMIN to RESOURCE	170 m
FINANCE to RESOURCE	125 m
ADMIN to TRAINING	120 m
Manglore to Delhi Head office	2233Km

(I) Suggest and draw the cable layout to economically connect various buildings within the Mangalore Centre for connecting the digital devices.

(II) Suggest the most suitable place (i.e. building) to house the SERVER in Manglore office with a suitable reason.

(III) Suggest the placement of the following devices in each building at MANGLORE office with justification:

- Repeater
- Switch

(IV) Suggest the best wired medium to efficiently connect various buildings within the MANGLORE office campus.

(V) (A) Suggest the type of network (out of LAN, MAN and WAN) to connect Training Department in Manglore to Delhi Head office with suitable reason.

OR

(B) What is the use of FTP?.

37. A file, TRAIN.DAT, stores the records of passengers using the following structure : 1+2+2
[PNR, PName, BRDSTN, DESTN, FARE]
where :

- 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 functions in Python for the following tasks :

(I) Create() – to input data for passengers and write it in the binary file TRAIN.DAT.

(II) SearchDestn(P) – to read contents from the file TRAIN.DAT and display the details of those Passengers whose DESTN matches with the value of P.

(III) UpdateFare() – to decrease the fare of all passengers by 5% and rewrite the updated records into the file TRAIN.DAT.