

- Please check that this question paper contains **16** printed pages.
- Code number given on the right hand side of the question paper should be written on the title page of the answer book by the candidate.
- Please check that this question paper contains **35** questions.
- Please write down the **Serial Number of the question before attempting it.**
- 15 minutes time has been allotted to read this question paper. The students will read the question paper only and will not write any answer on the answer-book during this period.

II PRE BOARD EXAMINATION COMPUTER SCIENCE

Time allowed : 3 hours

Maximum Marks : 70

General Instructions :-

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each.
8. All programming questions are to be answered using Python Language only.

SECTION - A

1. State True or False:-
Immutable data types are those whose value cannot be changed. *True*
2. Which of the following is an mutable datatype in Python?
 - a. Set
 - b. Dictionary
 - c. List
 - d. Complex
3. Consider the following list and predict the output of the following statements:

```
A = [11, 22, 33, 44, 55]
A = A[0:2] + [100] + A[3:]
print(A)
```
4. Which of the following statements is correct for variable names in Python language?
 - a. All variable names must begin with an underscore.
 - b. Unlimited length
 - c. The variable name length is a maximum of 2.
 - d. All of the above

5. What will be the output of the following code snippet?

```
a = [1, 2]
```

```
print(a * 3)
```

a. [1, 2]

b. [3, 6]

c. [1, 2, 1, 2, 1, 2]

d. Error

6. Match the following Set 1 to Set 2:-

Set 1

Set 2

(a) f.seek(5, 1)

i) Move file pointer five characters behind from the current position

(b) f.seek(-5, 1)

ii) Move file pointer to the end of a File.

(c) f.seek(0, 2)

iii) Move file pointer five characters ahead from current position

(d) f.seek(0)

iv) Move file pointer to the beginning of a File.

1. a-i, b- iii, c-ii, d- iv

2. a-i, b- iii, c-iv, d-ii

3. a-iii, b-i, c-iv, d-ii

4. a-iii, b-i, c-ii, d-iv

7. If we have not specified ASC or DESC after a SQL ORDER BY clause, the following is used by default :

a. DESC

b. ASC

c. There is no default value

d. None of the mentioned 1

8. SELECT ROUND (65.726, -1) FROM DUAL; will print

a. is illegal

b. garbage

c. 726

d. 70

9. Which of the following is the correct order of a SQL statement?
- SELECT, GROUP BY, WHERE, HAVING
 - SELECT, WHERE, GROUP BY, HAVING
 - SELECT, HAVING, WHERE, GROUP BY
 - SELECT, WHERE, HAVING, GROUP BY
10. Which command is used to change the definition of a table in SQL?
- CREATE
 - UPDATE
 - ALTER
 - SELECT
11. Which operator is used to compare the NULL values in SQL?
- Equal
 - IN
 - IS
 - None of these
12. Find the cities name with the condition and temperature from table 'whether' where condition = sunny or cloudy but temperature ≥ 60 .
- SELECT city, temperature, condition FROM weather WHERE condition = 'cloudy' AND condition = 'sunny' OR temperature ≥ 60
 - SELECT city, temperature, condition FROM weather WHERE condition = 'cloudy' OR condition = 'sunny' OR temperature ≥ 60
 - SELECT city, temperature, condition FROM weather WHERE condition = 'sunny' OR condition = 'cloudy' AND temperature ≥ 60
 - SELECT city, temperature, condition FROM weather WHERE condition = 'sunny' AND condition = 'cloudy' AND temperature ≥ 60
13. What kind of transmission medium is most appropriate to carry data in a computer network that is exposed to electrical interferences?
- Unshielded twisted pair
 - Optical fiber
 - Coaxial cable
 - Microwave

SECTION - B

19. Rao has written a code to input name and age and store it in a dictionary. His code is having errors. Rewrite the correct code and underline the corrections made.

```
d1 = dict[ ] ( )
```

```
l = 1
```

```
n = input("Enter number of entries")
```

```
while i<=n:
```

```
    a = input(" Name ")
```

```
    b = input(" Age ")
```

```
    d1(a) = b
```

```
    i = i+1
```

```
l = d1.key( )
```

```
for I in l:
```

```
    print(I, '\t', 'd1[i]')
```

20. What is topology? Write difference between Ring and Star topology.

OR

Write two points of difference between MAN and WAN.

21. a. Write the output of following program :

```
a = 'python rocks'
```

```
for ch in a[3:8]:
```

```
    print('Hello')
```

- b. Write the output of the code given below :

```
L=["abc", [6, 7, 8],3, "mouse"]
```

```
print(L[:2], L[1][1])
```

22. What is the use of 'Primary Key' in a Relational Database Management System. Give example to support your answer.

23. a. Write the full forms of the following :

i. TCP / IP

ii. SMTP

- b. What is function of POP protocol?

24. Predict the output of the Python code given below :

```
tuple = [1, 2, 3, 4]
tuple.append( (5, 6, 7) )
print(len(tuple))
```

OR

Predict the output of the Python code given below :

```
dictionary = {"peek":10, "for":45, "peeks": 90}
print("peek" in dictionary)
```

25. What is the basic difference between DDL and DML commands? Give one example of each.

OR

Write difference between where and having clause with example

SECTION - C

26. Consider the following tables SCHOOL and ADMIN.

Give the output the following SQL queries

TABLE : SCHOOL

CODE	TEACHER	SUBJECT	DOJ	PERIODS	EXPERIENCE
1001	RAVI SHANKAR	ENGLISH	12/03/2000	24	10
1009	PRIYA RAI	PHYSICS	03/09/1998	26	12
1203	LIS ANAND	ENGLISH	09/04/2000	27	5
1045	YASHRAJ	MATHS	24/08/2000	24	15
1123	GANAN	PHYSICS	16/07/1999	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

- 1- Select Designation Count (*) From Admin Group By Designation Having Count (*) < 2;
- 2- SELECT max (EXPERIENCE) FROM SCHOOL;
- 3- SELECT TEACHER FROM SCHOOL WHERE EXPERIENCE >12 ORDER BY TEACHER;

27. Write a method Method1() to create a text file "MyFile.txt" in python and ask the user to write separate 3 lines with three input statements from the user.

OR

Write a method Method2() to Count the total number of upper case, lower case, and digits used in the text file "employee.txt".

28. a. Find outputs for SQL queries (i) to (iv), which are based on the tables TRANSPORT and TRIP

TABLE : TRANSPORT

TCODE	TTYTYPE	PERKLM
103	ORDINARY BUS	90
105	SUV	40
104	CAR	20
103	ORDINARY BUS	90
101	VOLVO BUS	160
102	AC DELUX BUS	14

Note : PERKS is Freight Charges per kilometer

TTYTYPE is Transport Vehicle Type

TABLE : TRIP

NO	NAME	TDATE	KM	TCODE	NOP
11	Tanish Khan	2015-12-13	200	101	32
13	Danish Sahai	2016-06-21	100	103	45
15	Ram Kumar	2016-02-23	350	102	42
12	Fen Shen	2016-01-13	90	102	40
17	Aan Kumar	2015-02-10	75	104	2
14	Veena	2016-06-28	80	105	4
16	Rajpal Kirti	2016-06-06	200	101	25

- Note :
- NO is Driver Number
 - KM is Kilometer travelled
 - NOP is number of travellers travelled in vehicle.
 - TDATE is Trip Date

1. SELECT COUNT (*), TCODE From TRIP
GROUP BY TCODE HAVNING count (*) > 1;
2. SELECT DISTINCT TCODE from TRIP;
3. SELECT A.TCODE, NAME, TTYPE
FROM TRIP A, TRANSPORT B
WHERE A. TCODE = B. TCODE AND KM < 90;
4. SELECT NAME, KM *PERKM
FROM TRIP A, TRANSPORT B
WHERE A. TCODE = B. TCODE AND A. TCODE = 105?

b. Write the command to delete database Employee.

29. Write a Python script to concatenate following dictionaries to create a new one.

Sample Dictionary :

dic1 = {1:10, 2:20}

dic2 = {3:30, 4:40}

dic3 = {5:50,6:60}

Expected Result : {1 : 10, 2 : 20, 3 : 30, 4 : 40, 5 : 50, 6 : 60}

30. Write a function in Python Push(Arr) , where Arr is a list of numbers. From the list , push all the numbers divisible by 5 into a stack implemented by using a list. Display the stack if it has at least one element, otherwise display appropriate error message.

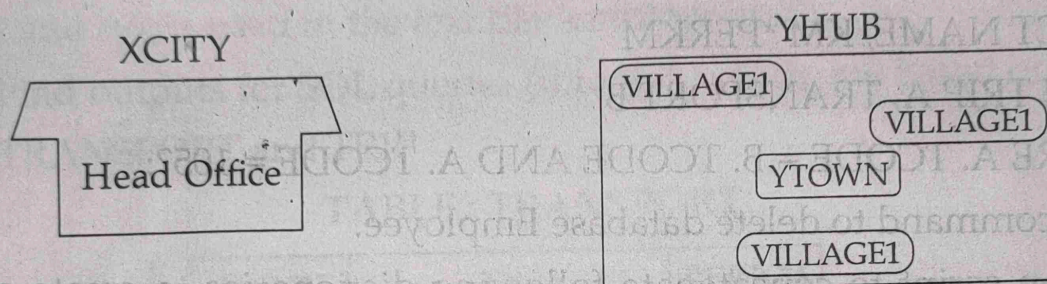
OR

Write a function in Python Pop(Arr) where Arr is a Stack implemented by a list of numbers. The function returns the value deleted from the stack.

SECTION - D

31. Intelligent Hub India is a knowledge community aimed to uplift the standard of skills and knowledge in the society it is planning to setup its training centres in multiple towns and villages pan India with its offices in the nearest cities. They have created a model of their network with a city, a town and 3 villages as given.

As a network consultant, you have to suggest the best network related solution for their issues/problems raised in (i) and (iv) keeping in mind the distance between various locations and given parameters.



Shortest distance between various locations :

VILLAGE 1 TO YTOWN	2 KM
VILLAGE 2 TO YTOWN	1.2 KM
VILLAGE 3 TO YTOWN	3 KM
VILLAGE 1 TO VILLAGE 2	3.5 KM
VILLAGE 1 TO VILLAGE 3	4.5 KM
VILLAGE 2 TO VILLAGE 3	3.5 KM
CITY Head Office to YHUB	30 KM

Number of computers installed at various locations are as follows :

YTOWN	100
VILLAGE 1	10
VILLAGE 2	15
VILLAGE 3	15
CITY OFFICE	5

Note:

- In Villages, there are community centres, in which one room has been given as training center to this organization to install computers.
 - The organization has got financial support from the government and top IT companies.
1. Suggest the most appropriate location of the SERVER in the YHUB (out of the 4 locations), to get the best and effective connectivity. Justify your answer.
 2. Suggest the best wired medium and draw the cable layout (location to location) to efficiently connect various locations within the YHUB.
 3. Which hardware device will you suggest to connect all the computers within each location of YHUB?
 4. Which server/protocol will be most helpful to conduct live interaction of Experts from Head office and people at YHUB locations?
 5. Which hardware device will you suggest to speedup communication among computers?

32. The code given below inserts the following record in the table `customer_details` (`acct_no`, `acct_name` string, `phone_no`, `address` string, `cr_amt`)

Note the following to establish connectivity between Python and MYSQL :

- Username is root
- Password is root
- The table exists in a MYSQL database named Bank
- The details (`acct_no`, `acct_names`, `phone_no`, `address`, `cr_amt`) are to be accepted from the user.

Write the following missing statements to complete the code :

Statement 1 - to form the cursor object

Statement 2 - to execute the command that inserts the record in the table `customer_details`.

Statement 3 - to add the record permanently in the database

```
import mysql.connector
conn = mysql.connector.connect(host = 'localhost', user = 'root',
passwd = 'root', database = 'bank')
cur = _____ # Statement 1
acc_no = int(input('Enter Account Number'))
acc_name = input('Enter Name')
ph_no = int(input('Enter Phone No'))
address = input('Enter Address')
cr_amt = int(input('Enter amount='))
Query1 = "insert into customer_details values
({},{},{},{},{})".format(acc_no, acc_name, ph_no, address, cr_amt)
_____ # Statement 2
_____ # Statement 3
print("Data Added successfully")
```

OR

The code given below takes input of account no from user and reads the record from the table named customer_details and displays the complete record of account holder.

Table & its columns - customer_details (acct_no int, acct_name string, phone_no int, address string, cr_amt int)

Note the following to establish connectivity between Python and MYSQL :

- Username is root
- Password is root
- The table exists in a MYSQL database named Bank

Write the following missing statements to complete the code :

Statement 1 - to form the cursor object

Statement 2 - to execute the query that extracts record of customer whose account_no has been taken from user.

Statement 3 - to display record of customer.

```
import mysql.connector
conn = mysql.connector.connect(host = 'localhost', user = 'root',
passwd = 'root', database = 'bank')
cur = _____ # Statement 1
acct_no = int(input('Enter Account Number = '))
Query1 = "select * from customer_details where acct_no = ' " +
str(acct_no) )
_____ # Statement 2
data = _____ # Statement 3
count = cur.rowcount
if count == 0:
print('Account Number Invalid. Sorry Try Again')
else:
    for row in data:
        print('ACCOUNT NO = ', acct_no)
        print('ACCOUNT NAME = ', row[1])
        print('PHONE NUMBER = ', row[2])
        print('ADDRESS = ', row[3])
        print('cr_amt=', row[4])
```

33. Srishti is a class 12 Computer Science student. She has been assigned an incomplete python code (shown below) to create a CSV file 'book.csv' and display the file content (as shown below). Help her to complete the following

code.

CSV File

bookid, subject, class

b1, Hindi, VI

b2, Science, VII

b3, Math, VI

import #Statement-1

fn = open(____, ____) #Statement2

fno = csv.____ #Statement-3

fno.writerow(["bookid", "subject", "class"])

fno.writerow(["b1", "Hindi", "VI"])

fno.writerow(["b2", "Science", "VII"])

fno.writerow(["b3", "Math", "VI"])

fn.____ #Statement-4

__open("book.csv", "r") as fn: #Statement-5

rd = csv.____ #Statement-6

for rec in rd:

print(rec)

fn.close()

1. Choose the correct code for Statement1.

- a. csv
- b. CSV
- c. CVS
- d. csv file

2. Choose the correct code for Statement2.

- a. "book.csv", ""
- b. "book.csv", "W"
- c. "book.csv file", "w"
- d. "book", "w"

3. Choose the correct code for Statement 3.

- a. reader(fn)
- b. read(book)
- c. writer(fn)
- d. write(fn)

4. Choose the correct code for Statement 4.

- a. dump
- b. close()
- c. exit()
- d. end()

5. Choose the correct code for Statement 5

- a. fn =
- b. with
- c. With
- d. as

6. Choose the correct code for Statement.

- a. readlines(fn)
- b. read(fn)
- c. readrows()
- d. reader(fn)

SECTION - E

34. An organisation wants to create a database EMPDEPENDENT to maintain following details about its employees and their dependent.

EMPLOYEE(AadharNumber, Name, Address, Department, EmployeeID)

DEPENDENT(EmployeeID, DependentName, Relationship)

- a. Name the attributes of EMPLOYEE, which can be used as candidate keys.
- b. Write Sql statement to create table EMPLOYEE & DEPENDENT with relevant constraint.(Primary key, foreign key, not null)
- c. What is the degree of EMPLOYEE and DEPENDENT relation?

35. a. Ms. Sejal is working on the sports.dat file but she is confused about how to read data from the binary file. Suggest a suitable line for her to fulfill her wish.

```
import pickle
```

```
def sports_read():
```

```
    f1 = open("sports.dat", "rb")
```

```
    _____ # statement 1
```

```
    print(data)
```

```
    f1.close()
```

```
sports_read()
```

- b. Improve above code and write the correct code to display all records from the file.

```
#####
```