Meghalaya Board of School Education

SAMPLE PAPERS

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COMPUTER SCIENCE

(Theory)

Full Marks : 70

Time : 3 hours

The figures in the margin indicate full marks for the questions

General Instructions :

(i) Write all the answers in the Answer Script.

(ii) Attempt multiple choice questions and very short answer-type questions serially.

(iii) Attempt all parts of a question together at one place.

1. Choose the correct option from the following : 1×6=6

(a) What will be the value of the following expression?

14 13%15

(i) 14

(ii) 27

(iii) 12

(iv) 0

(b) Which of the following represents the mode of both writing and reading in binary format in file?

(i) wb+

(ii) w

(iii) wb

(iv) w+

(c) Data structure stack is also known as _____ list.

(i) first in first out

(ii) first in last out

(iii) last in first out

(iv) All of the above

(d) Which of the following function headers is correct?

(i) def f(a=1, b):

(ii) def f(a=1, b, c=2):

(iii) def f(a=1, b=1, c=2):

(iv) def f(a=1, b=1, c=2, d):

(e) In the given query which keyword has to be inserted?

INSERT INTO employee _____ (1002, Kausar, 2000);

(i) table

(ii) values

(iii) relation

(iv) field

(f) In order to open a connection with MySQL database from within Python using MySQL connector package, _____ function is used.

(i) open()

(ii) database()

(iii) connect()

(iv) connectdb()

2. Answer the following questions in not more than *2* (*two*) or *3* (*three*) sentences each : 1×6=6

(a) Write the output for the following code :

```
for i in range (2, 10, 3) :
        print (i)
```

(b) Given the list :

```
L = [1, 3, 6, 82, 5, 7, 11, 92]
```

write the output of the following statement :

```
print (L[2:5])
```

(c) Write the different components of a function header.

(d) What are CSV files?

(e) Write an SQL query to delete the employee record having Name as 'Siddharth' from 'emp' table.

(f) What are the network protocols?

3. Answer any *six* of the following questions : 2×6=12

(a) What is the difference between readline() and readlines() functions?

(b) Convert the expression (A+B)/C into prefix expression.

(c) Differentiate between fruitful and non-fruitful functions.

(d) Explain the tell() and the seek() functions of Python.

(e) How is append() different from extend() in list?

(f) Compare and comment on the following two return statements :

```
return
return n1, n2
```

(g) What is a string slice? Give one example.

(h) Predict the output of the following program :

```
def func (message, num=1):
  print (message * num)

func ('Python')
func ('Easy', 3)
```

4. Answer any *three* of the following questions : 2×3=6

(a) Give one advantage and one disadvantage of Star topology.

(b) Differentiate between FTP and HTTP.

(c) Differentiate between HTML and XML.

(d) Name the different types of wired communication media in computer networking.

(e) When are repeaters required in computer network?

5. Answer any *two* of the following questions : 2×2=4

(a) Define the terms *(i)* primary key and *(ii)* foreign key.

(b) Write a query to display the name of an employee from the table 'Employee' whose name contains 'R' as the last alphabet.

(c) Differentiate between CHAR and VARCHAR data types.

(d) Write the SQL commands to do the following :

(i) To view the structure of the table 'Student'

(ii) To delete the table 'Student'

6. Answer the following questions : 3×4=12

(a) What are the three types of formal arguments? Explain with examples.

(b) Consider the following codes and write the flow of execution for this. Line numbers have been given for your reference :

```
1. def power (b, p) :

2. y  b   p
```

```
3.  return y
4.
5.  def CalcSquare (x) :
6.  a = power (x, 2)
7.  return a
8.
9.  n = 5
10. result = CalcSquare (n)
11. print (result)
```

Or

Predict the output of the following program :

```
c = 10
def add ():
    global c
    c = c+2
    print ("Value of c=", c)
    return (c+5)
print ("Value of c=", c)
x = add()
print ("value of x=", x)
```

(c) What is the output of the following program?

```
out = open ("output.txt", "w")

out.write ("Hello, World! \n")

out.write ("How are you?")

out.close()

str = open ("output.txt")

print (str.read())

str.close()
```

Or

Convert the expression A (B (C D) (E F) / G) H into postfix.

(d) Write a program that reads the text file and prints total number of words in the text file.

Or

What are the different modes of opening a binary file?

7. Answer the following questions : 3

(a) John thought "WWW and Internet" are synonyms i.e. they meant same and can be used interchangeably. But the teacher said that they are not same. Help him to explain the meaning of both the terms with the help of a suitable example of each.

Or

(b) Define the following :

(i) Web browser

(ii) Web server

(iii) Web hosting

8. Answer the following questions : 3×3=9

(a) Write the SQL queries with reference to the following tables :



Table : Employees

Emp_id (Primary key)
Name
Address
City

Table : Emp_Salary

Sal_code (Primary key)
Emp_id (Foreign key)
Salary
Benefits
Designation

(i) To show Name, Address and City of all employees living in Paris.

(ii) To display Name and Salary of all Managers.

(iii) To display the maximum Salary of Managers and Clerks.

Or

Given the table :

Table : Student

Sl_no
Name
Age
Department
Date of adm
Fees
Sex

Write the following SQL queries with reference to the above table :

(i) To count the number of students with age < 23.

(ii) To list the names of female students who are in 'Computer' department.

(iii) To list the names of all students with their date of admission in ascending order.

(b) What is SQL Join? Explain equi join with example.

(c) What is the purpose of ALTER command? Write an SQL query to increase the salary by ₹ 1,000, for all who gets salary less than ₹ 5,000 from the table 'Employee'.

Or

What is the difference between a WHERE clause and a HAVING clause of SQL SELECT statement? What is the use of GROUP BY clause?

9. Answer the following questions : 4×2=8

(a) Write a program to create a CSV file to store student's data (RollNo, Name, Marks). Obtain data from user and write 5 records into the file.



Or

Write a function in Python that counts the number of 'ME' and 'MY' words present in a text file 'story.txt'.

(b) What are serialization and de-serialization processes? Explain the functions required for serialization and de-serialization.

Or

Create two functions Push() and Pop() for performing Push and Pop operations with a stack containing integers.

10. Write a Python code to connect a MySQL database namely 'School' and then fetch all those records from the table 'Student' where grade is 'A'. 4

Or

Given the following table : 4

Table : STUDENT

Roll No.	*Name*	*Class*	*DoB*	*Gender*	*City*	*Marks*
1	Nanda	X	06-06-1995	M	Agra	551
2	Saurabh	XII	07-05-1993	M	Mumbai	462
3	Sanal	XI	06-05-1994	F	Delhi	400
4	Trisla	XII	08-08-1995	F	Mumbai	450
5	Stort	XII	08-10-1995	M	Delhi	369
6	Marisla	XI	12-12-1994	F	Dubai	250
7	Neha	X	08-12-1995	F	Moscow	377
8	Nishant	X	12-06-1995	M	Moscow	489



(i) SELECT COUNT( ), city FROM STUDENT GROUP BY CITY HAVING COUNT( ) > 1;

(ii) SELECT MAX(DoB), MIN(DoB) FROM STUDENT;

(iii) SELECT Name, Gender FROM STUDENT WHERE City = “Delhi”;

(iv) SELECT Name FROM STUDENT ORDER By Name;

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