

SOS 2080

Opt. II Computer Science

Time: 2 hours

Full Marks: 50

Candidates are required to give their answer according to the given instructions.

Attempt all questions.

Group 'A'

1) Answer the following questions in one sentence. [6×1=6]

- a) Write any two examples of full duplex mode of data transmission.
- b) Mention any two services of the internet.
- c) Which query is used to make changes in data stored in the database?
- d) Which data type is also known as logical data type in MS-Access?
- e) List the modes of operations for opening a sequential file.
- f) Write any two looping statements used in C language.

2) Write the appropriate technical term for the following statements. [2×1=2]

- a) Network connecting device that boosts the data signals.
- b) The use of computer technology to create a simulated environment.

3) Write the full form of the following acronyms. [2×1=2]

- a) OTP
 - b) PaaS
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Group 'B' - 24 Marks

4) Answer the following questions. [9×2=18]

- a) "The Internet is called network of networks." Justify in your own words.
- b) What is hacking? What is the purpose of hacking?
- c) Define antivirus software with four examples.
- d) What is E-commerce? Write any four Nepali e-commerce websites.
- e) What is AI? List any four areas of AI.
- f) What is DBMS? Name any four examples of database.
- g) Differentiate between field and record.
- h) What is the report? Write any two importance of the report.
- i) Write any four advantages of a computerized database.

5) Write down the output of the given program (Show with a dry run table). [3]

```
DECLARE SUB SHOW(A)
CLS
N = 87
CALL SHOW(N)
END

SUB SHOW (A)
DO
B = A MOD 6 + 3
IF B MOD 4 = 0 THEN GOTO AA
PRINT B;
AA:
A = A - 10
LOOP WHILE A >= 50
END SUB
```

6) Rewrite the given program after correcting the bugs. [3]

```
REM to add more data in a sequential file
OPEN "EMP.DAT" FOR INPUT AS #2
```

```
DO
INPUT "ENTER NAME"; N$
INPUT "ENTER ADDRESS"; A$
INPUT "ENTER SALARY"; S$
WRITE #1, N$, A$, S
INPUT "Do you want to add more records"; M$
LOOP WHILE UCASE(M$) = "Y"
END
```

7) Study the following program and answer the given questions. [2]

```
DECLARE SUB PC (N)
CLS
INPUT "Enter a number"; N
CALL PC(N)
END
```

```
SUB PC (N)
FOR I = 2 TO N - 1
R = N MOD I
IF C = 0 THEN
PRINT "Prime number"
ELSE
PRINT "Composite number"
END IF
END SUB
```

Questions:

- a) What is the name of the sub procedure?
 - b) List the local variables.
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Group 'C' - 16 Marks

8) Convert/calculate as per the instructions. [4×1=4]

a) $(100111101)_2 = (?)_{16}$

b) $(912)_{10} = (?)_8$

c) $(10010)_2 \times (1110)_2 - (10101)_2 = (?)_2$

d) $(1011101)_2 \div (111)_2$

9) Answer the following. [2×4=8]

a) Write a program in QBasic that asks any number and display its square and square root. Create a user-defined function to calculate square root and a sub program to display the square of a number.

b) A data file "Staff.dat" has stored records of few employers with EmpID, name, address, post and salary. Write a program to display all the records of the employees whose address is "Nepal" and salary is less than 40,000.

10) Write a program in C language that asks any integer value and checks whether it is odd or even. [4]

OR

Write a program in C language to display the first 10 odd numbers.