PABSON 2080 (KOSHI)

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 the different modes of communication.

b) What is IoT?

c) List the different LAN topology.

d) What is Global Variable in QBasic?

e) What is tuple?

f) Write any two data types used in C-language.

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

a) Sending and receiving messages electronically through the Internet.

b) Services provided by the government to public via electronic media especially using Internet.

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

a) FTP

b) B2B

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

a) What is computer network? Write any two advantages of computer network.

b) List any four areas where AI can help us.

c) What is digital footprint? Write any two points to reduce the size of digital footprint while using internet.

d) Mention the benefits and limitations of E-commerce.

e) Define Encryption and Decryption.

f) What is RDBMS? Write any two examples.

g) Write the functions of Primary key.

h) What is query? Write its type.

i) Define Form and Report.

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

```
DECLARE FUNCTION PRE(A)
CLS
A=12345
S=PRE(A)
PRINT S
END

FUNCTION PRE(A)
WHILE A <> 0
R = A MOD 10
S = S + R
A = A \ 10
WEND
PRE = S
END FUNCTION
```

6) Re-write the given program after correcting the bugs. [3]

```
REM to create sequential data file "record.dat" to delete some records.
CLS
OPEN "record.dat" FOR INPUT AS #I
OPEN "new.dat" FOR OUTPUT AS #1
```

```
WHILE NOT EOF(#1)
INPUT #1 N$, A$, PH
PRINT N$, A$, PH
INPUT "Do you want to delete this record?(y/n)"; an$
IF LCASE(ans$) <> "y" then
WRITE #2, N$, A$, PH
ENDIF
WEND
CLOSE #1, #2
DEL "record.dat"
NAME "new.dat" AS "record.dat"
END
```

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

```
DECLARE SUB TEN (A$)
B$ = "SCIENCE"
CALL TEN(B$)
END

SUB TEN(C$)
L = LEN(C$)
FOR I = 1 TO 4
D$ = MID$(C$, I, L)
PRINT TAB(I); D$
L = L - 2
NEXT I
END SUB
```

Questions:

a) How many parameters are used in the above program?

b) List the different library functions used in the above program.

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

a) $(11011)_2$ into Decimal number

b) $(2AF)_{16}$ into Octal number

c) 1100 × 100 - 101

d) 10001 ÷ 110

9) Answer the following. [2×4=8]

a) Write a program in QBasic that asks the radius of a hemisphere and calculate its volume and total surface area. Create a user-defined function First(r) to calculate volume and sub-procedure Second(r) to calculate total surface area of a hemisphere.
[Hints: TSA = 3πr², V = 2/3πr³]

b) A sequential data file called "list.dat" has stored data under the field heading items name, quantity and rate. Write a program to update all the records by increasing the rate by 10%.

10) Answer the following. [2×2=4]

a) Write a program in C language to enter a number and find out whether it is positive or negative.

b) Write a C program to display the sum of first 10 natural numbers.