SOLUTIONS SEE COMPUTER SCIENCE READMORE PUBLICATION 2080

SOLVED BY DEEPAK SHRESTHA

1. SEE Model SET Issued by CDC

Group 'A' (10 Marks)

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

a. What is search engine?

Search engine is the communication program that searches documents on the basis of specified keywords and returns a list of the web links that matches the keywords.

b. What is the business done through internet?

The business done through internet is e-commerce.

c.   Which data type is used to store alpha numeric characters or special symbols in MS-Access?

Text data type is used to store alpha numeric characters or special symbols in MS-Access.

d. Which view is used to modify a table in MS-Access?

Design view is used to modify a table in MS-Access

e. What is modular programming?

Modular programming is a technique used to divide our program into many small logical, manageable and functional modules or blocks

f. Write any two features of C language.

Any two features of C language are:

- C is a Structured Programming Language. which break down a program in several small modules and makes the programmer easier to manage and debug the code.
- C is a case-sensitive programming language. It understands the capital alphabets and small alphabets as different values.

2. Write appropriate technical terms for the following: [2×1=2]

a.   Law that governs the legal issues of cyberspace.
   Cyber Law

b.   The smallest unit to represent information on a quantum computer.
   Qubit (Quantum bit)

3. Write the full forms of the following: [2×1=2]

a. **STP**: Shielded Twisted Pair
b. **WAP**: Wireless Application Protocol

Group 'B' [24 Marks]

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

a. What is computer network? Enlist any two advantages of it.

Computer network is a group of two or more computers and devices connected to each other through wired or wireless media to exchange data and information and share hardware, software and other resources.

Any two advantages of computer network are:
1. A network connected computers can share hardware devices such as scanner, printer, hard disk, etc.
2. It can communicate and share information all over the world through Internet.

b. What is computer ethics? Write any two of them.

Computer ethics is a set of moral principles or code of conducts that regulate the use of computers systematically without making harm to other users.

Any two cyber ethics are:
- Do not use a computer to publish fake information.
- Do not search the file or record of other people.

c.   What is software security? Write any two measures of hardware security.

Software security is the protection of computer systems and applications from threats, such as hacking, virus attacks, and unauthorized access, to ensure their confidentiality, integrity, and availability

Any two measures of hardware security are:

v Insurance

v Power Protection Device

d.   What is M-commerce? Write any two important services.

M-Commerce refers to the process of buying and selling of goods and services through wireless handheld devices such as smartphones, tablets or personal digital assistants (PDAs).

Any two important services are:

- It provides a very convenient and easy to use the system to conduct business transaction.
- It helps to get wider variety of products and services.

e.   What is IoT? Write any two importance of it.

- IoT is a system of interrelated computing device to exchange information over a network without human-to-human or human to computer interaction.

Any two important of IoT are:

- It reduces the human effort, so it saves a lot of time.
- Information is easily accessible from any place at any time on any device.

f.   What is database? Give any two examples.

A collection of systematically organized inter-related data is called a database. The purpose of data base is to store, organize and retrieve data. E.g. Dictionary, Marks Ledger,

g.   What is primary key? List any two advantages of it.

A primary key is a field or combination of fields in a table that uniquely identifies each record, and is used to establish relationships between tables and enforce data integrity

Any two advantages of primary key are:

It sets the relationship between tables.

It reduces and controls duplication of record in a table

h.   What is data sorting? List any two advantages of using it.

The process of arranging all the records in a table either ascending or descending order based on field or fields is known as sorting. Sorted data is easier to handle than unsorted data.

Any two advantages of sorting are:

- Sorting helps to organize data and make it easier to find and retrieve specific information.
- Sorting can save time and improve efficiency by allowing users to quickly access the data they need.

i.   What type of work is done in MS-Access using form and query object.

Form is one of the MS-Access database objects which provides graphical interface to view, modify and add data in a table or multiple linked tables.

Query is an object of database that is used to view, retrieve, change and analyze records from a table or multiple linked tables based on specified condition.

5.   Write the output of the given program: Show with dry run in table.   [2]

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

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```
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
```

Dry run table

N	A	B=A MOD 6 + 3	IS B MOD 4=0 ?	PRINT B	A=A-10	WHILE A>=50
87	87	87 MOD 6 + 3 =3 + 3 = 6	6 MOD 4=0 ? 2 = 0 No	6	87-10=77	77>=50 YES
	77	77 MOD 6 + 3 5+3=8	8 MOD 4=0? 0=0 YES		77-10=67	67>=50 YES
	67	67 MOD 6+3 1+3=4	4 MOD 4=0? 0=0 YES		67-10=57	57>=50 YES
	57	57 MOD 6+3 3+3=6	6 MOD 4=0? 2=0 NO	6	57-10=47	47>=50 NO Loop Exits
	47					

The output of the program is:

6   6

6. **Re-write the given program after correcting the bugs:**   [2]

```
REM to add record in an existing file
CLS
OPEN "Record.Dat" FOR OUTPUT AS #1
AA:
INPUT "Enter Name, Class and Roll No."; Nm$, Cl, Rn
INPUT #2, Nm$, Cl, Rn
INPUT "More records"; Y$
IF UCASE$(Y$)="Y" THEN GOTO aa
CLOSE "Record.dat"
END
```

Debugged program:

```
REM to add record in an existing file
CLS
OPEN "Record.Dat" FOR APPEND AS #1
AA:
INPUT "Enter Name, Class and Roll No."; Nm$, Cl, Rn
WRITE #1, Nm$, Cl, Rn
INPUT "More records"; Y$
IF UCASE$(Y$)="Y" THEN GOTO AA
CLOSE #1
END
```

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7.   Study the following program and answer the given questions.   [2×1=2]

```
OPEN "Detail.dat" FOR INPUT AS #1
OPEN "Temp.dat" FOR OUTPUT AS #2
INPUT "Enter name of the students"; S$
FOR I=1 TO 10
INPUT #1, Nm$, Cl, A
IF S$< >Nm$ THEN
WRITE #2, Nm$, Cl, A
END IF
NEXT I
CLOSE #1, #2
KILL "Detail.dat"
NAME "Temp.dat" AS "Detail.dat"
END
```

a.   What is the main objective of the program given above?
The main objective of the program given above is to delete the record according to the entered name.

b.   Do you get any problem in the above program if "Kill" statement is removed? Give reason.
Yes, the program will display the error message and it won't delete the record.

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

$(11001101)_2 = (?)_{16}$

Soln:

Converting Binary to octal

Binary value in four bits	1100	1101
Hexadecimal number	C	D

$(11001101)_2 = (CD)_{16}$

$(524)_{10} = (?)_2$

Soln:

		Remainder
2	524	
2	262	0
2	131	0
2	65	1
2	32	1
2	16	0
2	8	0
2	4	0
2	2	0
2	1	0
2	0	1

$(524)_{10} = (1000001100)_2$

$(1010)_2 \times (110)_2 - (1011)_2 = (?)_2$

		1	0	1	0
		×	1	1	0
		0	0	0	0
	1	0	1	0	×
+ 1	0	1	0	×	×
1	1	1	1	0	0
	-	1	0	1	1
1	1	0	0	0	1

$(1010)_2 \times (110)_2 - (1011)_2 = (110001)_2$

$(10110)_2 ¸ (101)_2$

101)	1	0	1	1	0(	100
	- 1	0	1			
	0	0	0	1	0	
					-0	
				1	0	

Quotient=100
Remainder=10

9.   a. Write a program in QBASIC that asks length, breadth and height of room and calculate its area and volume. Create a user defined function to calculate area and sub-program to calculate volume. Hint: [A=L×B], [V=L×B×H]

```
DECLARE FUNCTION AREA(L,B)
DECLARE SUB VOL(L,B,H)
CLS
INPUT "Enter Length"; L
INPUT "Enter Breadth"; B
INPUT "Enter Height"; H
PRINT "Area of room="; AREA(L,B)
CALL VOL(L,B,H)
END

FUNCTION AREA(L,B)
AREA = L * B
END FUNCTION

SUB VOL(L,B,H)
V=L*B*H
PRINT "Volume of Room="; V
END SUB
```

b. A sequential data file called "Record.txt" has stored data under the field heading Roll No., Name, Gender, English, Nepali, Maths and Computer. Write a program to display all the information of those students whose gender is "F" and obtained marks in computer is more than 90.

```
OPEN "Record.txt" FOR INPUT AS #1
CLS
WHILE NOT EOF(1)
INPUT #1, R, N$, G$, E, N, M, C
IF UCASE$(G$)="F" AND C>=90 THEN
PRINT R; N$; G$; E; N; M; C
END IF
WEND
CLOSE #1
END
```

10. **Write a program in C language that asks a number and check whether it is odd or even.**

```
#include<stdio.h>
#include<conio.h>
int main()
{
int n;
printf("Enter any number: ");
scanf("%d", &n);
if(n%2==0)
printf("%d is even number", n);
else
printf("%d is odd number", n);
return 0;
}
```

OR

Write a program in C language to display the series with their sum.1, 2, 3, 4 upto 10ᵗʰ terms.
```
#include<stdio.h>
#include<conio.h>
int main()
{
int i, s=0;
i=1;
while(i<=5)
{
   printf("%d \n", i);
   s = s + i;
   i++;
}
print("%d \n Sum=", s);
return 0;
}
```

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2. SEE EXAMINATION 2079

1. Answer the following questions in one sentence.

a) What is network protocol?
Ans: A set of rules followed for interconnection and communication between computers in a network is called network protocol.

b) What is Ecommerce?
Ans: E-commerce is also known as electronic commerce or Internet commerce which means buying and selling of goods, products, or services through Internet.

c) What is the default size of text field in MS-Access?
Ans: The default size of a text field is 50 characters (2003 version) and 255 characters (2007 version) in MS-Access.

d) Which data type is used to store photo in MS-Access?
Ans: The data type used to store photos is called an OLE Object data type.

e) What is looping?
Ans: Looping is the process of repeating the execution of a statement or a block of statements guided by a condition and is terminated when the given condition is satisfied.

f) List any two data types used in C-programming language.
Ans: Any two data types used in C-programming language are char and int.

2. Write appropriate technical term for the following:
a) A program that can disinfect a file from virus. **Antivirus software**
b) Learning through the electronic media. **E-Learning**

3. Write the full form of the following:
a) G2G – Government to Government
b) ISP – Internet Service Provider

4. Answer the following questions:

a) What is network topology? List any two types of network topology.
Ans: Network topology is the inter-connected pattern of network components. Any two types of network topology are bus topology and star topology.

b) What is antivirus software? Name any two popular antivirus software.
Ans: Antivirus software is a computer program used to prevent, detect, and remove malware.
Any two popular antivirus software are Kaspersky and Norton Antivirus.

c) Define cyber law and cyber crime.
Ans The law which governs the legal issues in the cyber space regarding the internet or WWW for digital data processing and transaction is called cyber law.
Cyber crime refers to criminal activities that are carried out using computers, networks and the internet.

d) Define virtual reality. Write any two areas where virtual reality is used.

Ans: Virtual Reality (VR) is the use of computer technology to create a simulated environment that doesn't actually exist, that can give a feel of near real world with all or some of senses experiencing the virtually simulated environment.

Any two areas where virtual reality is used are Gaming and Education and Training.

e) What is password? Write any two importance of password protection.

Ans: A password is a string of characters including letters, digits, or other symbols which confirms the identity of a user.

Any two importance of password protection are:

1. Password secures the data by protecting the data from unauthorized access.
2. We have to keep the password secure and strong so that unauthorized users may not gain access to the resource and misuse it with our identity

f) What is DBMS? Write four objects of MS-Access.

Ans: DBMS is a computerized system that stores data, processes them and provides information in an organized form.

Any four objects of MS-Access are Table, Form, Query and Report.

g) What are validation text and validation rule?

Ans: Validation Text is a field property which displays an error message that appears if the data entered is invalid according to the specified validation rule.

Validation Rule is a field property which is used to limit the values that can be entered into a field.

h) What is form? Write any two advantages of it.

Ans: Form is one of the MS-Access database objects which provides graphical interface to view, modify and add data in a table or multiple linked tables.

Any two advantages of form are:

1. Form displays complete record one at a time, so we can view and modify records using the form.
2. Forms provides GUI (Graphical Users Interface) using which users interact with MS-Access database.

i) What is record? Why is primary key necessary in record?

Ans: A record is a row in a table which contains information about single items in a database. Record is complete set of information.

A primary key is necessary in a database record because it reduce and control duplication of the record in a table, sets the relationship between tables and identifies each record of a table uniquely.

5. Write down the output of the given program:

```
DECLARE SUB Series(A)
CLS
A=20
CALL Series(A)
END
SUB Series(A)
FOR K=1 to 5
PRINT A;
A=A+10
NEXT K
END SUB
```

Dry Run Table

A	K=1 to 5	PRINT A;	A=A+10
20	1 to 5 yes	20	20+10=30
30	2 to 5 yes	30	30+10=40
40	3 to 5 yes	40	40+10=50
50	4 to 5 yes	50	50+10=60
60	5 to 5 yes	60	60+10=70
70	6 to 5 no Loop exits		

The output of the program is:
20 30 40 50 60

6. Re-Write the given program after correcting the bugs:
REM program to make a word reverse
DECLARE FUNCTION Rev$(N$)
CLS
LNPUT "Enter a word"; N$
DISPLAY "Reversed is"; Rev$(N$)
END
EUNCTION Rev$(N$)
FOR K=LEN$(N$) To 1 STEP-1
B$=B$+MID$(N$,1,K)
NEXT K
B$=Rev$
END FUNCTION

Debugged Program
REM program to make a word reverse
DECLARE FUNCTION Rev$(N$)
CLS
INPUT "Enter a word"; N$
PRINT "Reversed is"; Rev$(N$)
END
FUNCTION Rev$(N$)
FOR K=**LEN** (N$) To 1 STEP-1
B$=B$+MID$(N$,**K,1**)
NEXT K
Rev$=B$
END FUNCTION

7. Study the following program and answer the given questions:
DECLARE FUNCTION SUM(N)
CLS
INPUT "Enter any number"; N
X=SUM(N)
PRINT "The sum of individual digit is "; X
END
FUNCTION SUM(N)
WHILE N<>0
R=N MOD 10
S=S+R
N=INT(N/10)
WEND
SUM=S
END FUNCTION

a) Write the function of INT.
Ans: It rounds and returns the largest integer less than or equal to a numeric expression

b) How many times does the WHILE ….WEND loop repeat if the value of N is 123?
Ans: The WHILE ….WEND loop repeats 3 times if the value of N is 123.

8. Convert/Calculate as per the instruction:
a) $(10110011)_2 - (?)_{16}$
Soln:

Paired Binary Digit	1011	0011
Binary Equivalent value	B	3

$(10110011)_2 = (B3)_{16}$

c) $(1001 + 110)_2 - (1000)_2$

	1	0	0	1
	+	1	1	0
	1	1	1	1
-	1	0	0	0
	0	1	1	1

$(1001 + 110)_2 - (1000)_2 = (0111)_2$

b) $(410)_{10} = (?)_2$

2	410	Remainder
2	205	0
2	102	1
2	51	0
2	25	1
2	12	1
2	6	0
2	3	0
2	1	1
2	0	1

$(410)_{10} = (110011010)_2$

101)	10110(	100
	-101	
	00010	
	-0	
	10	

Quotient = 100
Remainder = 10

d) $(10110)_2 \div (101)_2$

iv) $(10110)_2 ¸ (101)_2$

9. a) Write a program in QBASIC that asks radius of a circle to calculate its area and circumference. Create a user defined function to calculate area and sub program to calculate circumference.
[Hint A= πr^2, C= $2\pi r$]

```
DECLARE FUNCTION AREA (R)
DECLARE SUB CIR (R)
CLS
INPUT "ENTER RADIUS"; R
PRINT "AREA OF SQUARE "; AREA(R)
CALL CIR (R)
END

FUNCTION AREA (R)
AREA = 3.14 * R ^ 2
END FUNCTION

SUB CIR (R)
C = 2 * 3.14 * R
PRINT "CIRCUMFERENCE OF CIRCLE"; C
END SUB
```

b) A sequential data file called "Record.dat" has stored data under the field headings: Roll No., Name, Gender, English, Nepali, Maths and Computer. Write a program to display all the information of those students whose marks in English is more than 40.

```
OPEN "Record.dat" FOR INPUT AS #1
CLS
WHILE NOT EOF (1)
    INPUT #1, R, N$, G$, E, NP, M, C
    IF E > 40 THEN PRINT R, N$, G$, E, NP, M, C
WEND
CLOSE #1
END
```

10. Write a program in C language that asks any two numbers and displays the greatest among them.

OR

Write a program in C-Langauge to display the series with their sum. 1,2,3,4....upto 10th terms.

```c
#include<stdio.h>
#include<conio.h>
int main()
{
int a,b;
printf("Enter any two numbers:\n ");
scanf("%d %d", &a, &b);
if(a>b)
printf("The greatest number is %d", a);
else
printf("The greatest number is %d", b);
return 0;
}
```

```c
#include <stdio.h>
int main()
{
   int  j, sum = 0;
   printf("The first 10 natural number is :\n");
    for (j = 1; j <= 10; j++)
   {
     sum = sum + j;
     printf("%d ",j);
   }
   printf("\nThe Sum is : %d\n", sum);
}
```

***

3. SEE Grade Promotion 2078 (2022) SET A

Group 'A'

1. Answer the following questions in one sentence: 6x1=6

a) What is web browser?
Ans: Web browser is a computer program that access web pages and displays them on the user's computer.

b) Mention any two services provided by internet.
Ans: Any two services provided by internet are Search engine and E-mail.

c) What is the default extension of MS-Access?
Ans: The default extension of Ms-Access is :
.mdb (2003 version) and .accdb(2007 version).

d) Which object of MS-Access is used to retrieve data from the table?
Ans: Query is used to retrieve data from a table.

e) Write any one advantage of Modular Programming.
Ans: Any one advantage of modular programming is:
The debugging of the program becomes easier and faster

f) Mention any two basic data type of C language?
Ans: Any two basic data types of C language are: int and char.

2. Write appropriate technical term for the following:
a) Network of Networks. **Internet**
b) Computer program that protects computer from computer virus. **Antivirus software**

3. Write the full form of the following:
a) POP: **Post Office Protocol**
b) AI: **Artificial Intelligence**

Group B (24 Marks)

4. Answer the following questions.   9x2=18

a) What is computer network? List any two importance of it.
Ans: Computer network is a group of two or more computers and devices connected to each other through wired or wireless media to exchange data and information and share hardware, software and other resources.
Any two importance of computer network are:
1. A network connected computers can share hardware devices such as scanner, printer, hard disk, etc.
2. Networking also provides the facility of data and software backup system.

b) What is computer ethics? Write down any two ethics of it.
Ans: Computer ethics is a set of moral principles or code of conducts that regulate the use of computers systematically without making harm to other users.
Any two computer ethics are:
• Do not use a computer to publish fake information.
• Do not search the file or record of other people.

c) What is computer security? Write any two hardware security measures.

Ans: Computer security refers to protecting computer and its content from damage, theft or misuse and action to prevent such incidents.

The name of any two hardware security measures are:

Regular Maintenance

Power Protection device (Volt guard, Spike guard, UPS)

d) Give two differences between E-Commerce and Traditional Commerce.

Ans: Any two differences between E-Commerce and Traditional Commerce are:

E-Commerce	Traditional Commerce
E-commerce refers to the commercial transactions or exchange of information, buying or selling product/services electronically with the help of internet.	Traditional commerce refers to the commercial transactions or exchange of information, buying or selling product/services from person to person without use of internet.
In e-commerce delivery of goods takes time.	In traditional commerce delivery of goods is instant.

e) Write ant two symptoms of computer virus.

Ans: Any symptoms of computer virus are:

·   Program takes long time to load.

·   Increased use of disk space and growth in file size.

f) What is DBMS? Write any two examples.

Ans: DBMS is a computerized system that stores data, processes them and provides information in an organized form

Any two examples of DBMS are MS-Access and Oracle.

g) What is primary key? List any two advantages of it.

Ans: Primary Key is a special field or group of fields in the table that uniquely identifies each record from the database

Any two advantages of primary key are:

1. To reduce and control duplication of the record in a table.
2. To set the relationship between tables.

h) What is data sorting? List any two advantages of using it.

Ans: The process of arranging all the records in a table either ascending or descending order based on field or fields is known as sorting. Sorted data is easier to handle than unsorted data.

Any two advantages of using it are:

1. Sorting helps to organize data and make it easier to find and retrieve specific information.
2. Sorting can save time and improve efficiency by allowing users to quickly access the data they need.

i) List the field name from the following table structure.

Symbol No.	Name	Marks
00100200Q	Surya Gurung	85
00100201R	Birendra Sharma	91

Ans: The field names are Symbol No., Name and Marks.

5. Write down the output of the given program. Show with dry run in table.   2

```
DECLARE SUB Result(C$)
C$=”COMPUTER”
CALL Result(C$)
END
SUB Result(C$)
FOR C=1 TO LEN(C$) STEP 2
M$=MID$(C$,C,1)
N$=N$+M$
NEXT C
PRINT N$
END SUB
```

Dry run

C$	C=1TO 8 step 2 Yes	M$= MID$(C$,C,1)	N$ =N$+M$	PRINT N$
COMPUTER		C	C	CMUE
	3 to 8 Yes	M	CM	
	5 to 8 Yes	U	CMU	
	7 to 8 Yes	E	CMUE	
	9 to 8 No Loop Exits			

The output of the program is
CMUE

6. Re-write the given program after correcting the bugs: 2

```
REM to display records from existing file.
CLS
OPEN “emp.txt” FOR APPEND AS #1
WHILE NOT EOF(#1)
        WRITE #1, eN$, post$, salary
        PRINT eN$, post$, salary
CLOSE#1
END
```

Debugged Program
```
REM to display records from existing file.
    CLS
    OPEN “emp.txt” FOR INPUT AS #1
    WHILE NOT EOF(1)
            INPUT #1, eN$, post$, salary
            PRINT eN$, post$, salary
    WEND
    CLOSE #1
    END
```

7. Study the following program and answer the given questions.

2x1=2

DECLARE FUNCTION Prod(A,B)
CLS
INPUT "Enter first number"; A
INPUT "Enter second number"; B
PRINT "The product of the two number="; prod(A,B)
END
FUNCTION Prod(A,B)
P=A*B
Prod=P
END FUNCTION

a) List all the numerical variables used in the program.

Ans: The numerical variables used in the program are A, B and P

b) List the local variable/s used in the above program.

The local variable/s used in the program are A, B and P.

8. Convert / Calculate as per the instruction.   4x1=4

i) $(214)_{10} = (?)_2$

Soln:

2	214	Remainder
2	107	0
2	53	1
2	26	1
2	13	0
2	6	1
2	3	0
2	1	1
1	0	1

$(214)_{10} = (11010110)_2$

i) $(ABC)_{16} = (?)_2$

Soln:

Hexadecimal digit	A	B	C
Binary Equivalent value	1010	1011	1100

$(ABC)_{16} = (101010111100)_2$

iii) $(1011)_2 \times (101)_2 + (101)_2 = (?)_2$

		1	0	1	1
		x	1	0	1
		1	0	1	1
	0	0	0	0	x
1	0	1	1	x	x
1	1	0	1	1	1

Now,
```
  1 1 0 1 1 1
+     1 0 1
  1 1 1 1 0 0
```
$(1011)_2 \times (101)_2 +$
$(101)_2 = (?)_2 = (111100)_2$

iv) $(101110)_2 , (110)_2$

11)	10101	111
	-11	
	100	
	- 11	
	11	
	-11	
	00	

9 a) Write a program to calculate Area of circle using Function procedure and use SUB procedure to calculate its circumference in Q-Basic.
[Hint: [A=πr²,], [C=2πr]

```
DECLARE FUNCTION AREA (R)
DECLARE SUB CIR(R)
CLS
INPUT "Enter Radius"; R
PRINT "Area of circle="; AREA(R)
CALL CIR(R)
END

FUNCTION AREA(R)
AREA = 22/7*R^2
END FUNCTION

SUB CIR(R)
C=2*22/7*R
PRINT "Circumference of circle="; C
END SUB
```

b) Students Name, Class, Section and Address are stored in a data file called "STUDENT.dat".
Write a program to print all the records of students.

```
OPEN "student.dat" FOR INPUT AS #1
CLS
PRINT "Name", "Class", "Section", "Address"
WHILE NOT EOF(1)
INPUT #1, N$, C, S$, A$
PRINT N$, C, S$, A$
WEND
CLOSE #1
END
```

10. Write a program in C language to input a number then check whether the number is fully divisible by 5 or not.

```c
#include<stdio.h>
#include<conio.h>
    int main()
    {
    int n;
    printf("Enter any number: ");
    scanf("%d", &n);
    if(n%5= =0)
    printf("%d is fully divisible by 5",n);
    else
    printf("%d is not fully divisible by 5",n);
    return 0;
    }
```

```c
#include<stdio.h>
#include<conio.h>
int main()
{
int i, a;
i=1;
a=2;
while(i<=10)
{
    printf("%d \n", a);
    a=a+2;
    i++;
}
}
```

OR

Write a program in C language to display the series 2, 4, 6, 8 up to 10ᵗʰ terms.
***

4. SEE EXAMINATION GP 2078 [B]

Opt II Computer Science

Group A

1. **Answer the following questions in one sentence:**
   a) **What is search engine?**

Ans: Search engine is the communication program that searches documents on the basis of specified keywords and returns a list of the web links that matches the keywords.

b) **What is the business done through the internet called?**
   The business done through the internet is called e-commerce.

c) **What is the default size of text field in MS-Access?**
   Ans: The default extension of Ms-Access is :
   .mdb (2003 version) and .accdb(2007 version).

d) **Which data type is used to store photo in MS-Access?**
   Ans: The suitable data type to store photographs of students in MS-Access is OLE object.

e) **What is looping?**
   Ans: Looping is the process of repeating the execution of a statement or a block of statements guided by a condition and is terminated when the given condition is satisfied.

f) **List any two data types used in C-Programming language.**
   Any two data types used in C-Programming language are int and char.

2. **Write appropriate technical term for the following:**
a) **A program that can disinfect a file from virus.**
   Antivirus software
b) **Learning through the electronic media.**
   E-learning

3. **Write the full form of the following.**

a) G2G – **Government to Government**
b) ISP – **Internet Service Provider**

4. **Answer to the following questions:**
a) **What is network topology? List any two types of network topology.**
   Network topology is the inter-connected pattern of network components
   Any two types of network topology are bus topology and ring topology.

b) **What is antivirus software? Name any two popular antivirus software.**
   Ans: Antivirus software is a computer program used to prevent, detect, and remove malware.
   Any two popular antivirus software are Kaspersky and NOD 32.

c) **What is cyber law and cyber crime?**
   Ans The law which governs the legal issues in the cyber space regarding the internet or WWW for digital data processing and transaction is called cyber law.
   Cyber crime refers to criminal activities that are carried out using computers, networks and the internet.

d) **What is virtual reality? Write any two areas where virtual reality are used.**
   Ans: Virtual Reality (VR) is the use of computer technology to create a simulated environment that doesn't actually exist, that can give a feel of near real world with all or some of senses experiencing the virtually simulated environment.
   Any two areas where virtual reality is used are Gaming and Education and Training.

e) What is password? Write any two importance of password protection.

Ans: A password is a string of characters including letters, digits, or other symbols which confirms the identity of a user.

Any two importance of password protection are:
- Password secures the data by protecting the data from unauthorized access.
- We have to keep the password secure and strong so that unauthorized users may not gain access to the resource and misuse it with our identity

f) What is DBMS? Write four objects of MS-Access.

Ans: DBMS is a computerized system that stores data, processes them and provides information in an organized form.

Any four objects of MS-Access are Table, Form, Query and Report.

g) What are validation text and validation rule?

Ans: Validation Text is a field property which displays an error message that appears if the data entered is invalid according to the specified validation rule.

Validation Rule is a field property which is used to limit the values that can be entered into a field.

h) What is form? Write any two advantages of it.

Ans: Form is one of the MS-Access database objects which provides graphical interface to view, modify and add data in a table or multiple linked tables.

Any two advantages of form are:
- Form displays complete record one at a time, so we can view and modify records using the form.
- Forms provides GUI (Graphical Users Interface) using which users interact with MS-Access database.

i) What is record? Why is primary key necessary in record?

Ans: A record is a row in a table which contains information about single items in a database. Record is complete set of information.

A primary key is necessary in a database record because it reduce and control duplication of the record in a table, sets the relationship between tables and identifies each record of a table uniquely.

5. Write down the output of the given program:

```
DECLARE SUB Series(A)
CLS
A=20
CALL Series(A)
END
SUB Series(A)
FOR K=1 to 5
PRINT A;
A=A+10
NEXT K
END SUB
```

Dry Run Table

A	K=1 to 5	PRINT A;	A=A+10
20	1 to 5 yes	20	20+10=30
30	2 to 5 yes	30	30+10=40
40	3 to 5 yes	40	40+10=50
50	4 to 5 yes	50	50+10=60
60	5 to 5 yes	60	60+10=70
70	6 to 5 no Loop exits		

The output of the program is:

20 30 40 50 60

6. Re-Write the given program after correcting the bugs:
REM program to make a word reverse
DECLARE FUNCTION Rev$(N$)
CLS
INPUT "Enter a word"; N$
DISPLAY "Reversed is"; Rev$(N$)
END
FUNCTION Rev$(N$)
FOR K=LEN$(N$) To 1 STEP-1
B$=B$+MID$(N$,1,K)
NEXT K
B$=Rev$
END FUNCTION

Debugged Program
REM program to make a word reverse
DECLARE FUNCTION Rev$(N$)
CLS
INPUT "Enter a word"; N$
PRINT "Reversed is"; Rev$(N$)
END
FUNCTION Rev$(N$)
FOR K=**LEN** (N$) To 1 STEP-1
B$=B$+MID$(N$,**K,1**)
NEXT K
Rev$=B$
END FUNCTION

7. Study the following program and answer the given questions:
DECLARE FUNCTION SUM(N)
CLS
INPUT "Enter any number"; N
X=SUM(N)
PRINT "The sum of individual digit is "; X
END
FUNCTION SUM(N)
WHILE N<>0
R=N MOD 10
S=S+R
N=INT(N/10)
WEND
SUM=S
END FUNCTION

a) Write the function of INT.
Ans: It rounds and returns the largest integer less than or equal to a numeric expression

b) How many times does the WHILE ….WEND loop repeat if the value of N is 123?
Ans: The WHILE ….WEND loop repeats 3 times if the value of N is 123.

8. Convert/Calculate as per the instruction:

i) $(11001101)_2 = (?)_{16}$

Soln:

Paired Binary Digit	1100	1101
Binary Equivalent value	C	D

$(10110011)_2 = (CD)_{16}$

ii) $(524)_{10} = (?)_2$

2	524	Remainder
2	262	0
2	131	0
2	65	1
2	32	1
2	16	0
2	8	0
2	4	0
2	2	0
2	1	0
2	0	1

$(524)_{10} = (1000001100)_2$

iv) $(10110)_2 \div (101)_2$

Quotient = 100
Remainder = 10

iii) $(1010)_2 \times (110)_2 - (1011)_2 = (?)_2$

		1	0	1	0
		×	1	1	0
		0	0	0	0
	1	0	1	0	×
1	0	1	0	×	×
1	1	1	1	0	0
	-	1	0	1	1
1	1	0	0	0	1

$(1010)_2 \times (110)_2 - (1011)_2 = (110001)_2$

101)	10110(	100
	-101	
	00010	
	- 0	
	10	

9. Answer the following questions.

 a) **Write a program in QBASIC that will asks the user to input length, breadth and height of a room then use SUB procedure calculate its volume and FUNCTION procedure to calculate its area of four walls.**

```
DECLARE SUB VOL(L,B,H)
DECLARE FUNCTION AREA(L,B,H)
CLS
INPUT "Enter length"; L
INPUT "Enter breadth"; B
INPUT "Enter height"; H
CALL VOL(L, B, H)
PRINT "Area of four walls="; AREA(L, B, H)
END

SUB VOL(L, B, H)
V=L*B*H
PRINT "Volume of room"; V
END SUB

FUNCTION AREA(L, B, H)
AREA=2*H*(L+B)
END FUNCTION
```

b) **A sequential data file called "Record.dat" has stored data under the field heading Roll No., Name, Gender, English, Nepali, Maths and Computer. Write a program to display all the information of those students whose marks in English is more than 40.**

```
OPEN "Record.dat" FOR INPUT AS #1
CLS
WHILE NOT EOF (1)
   INPUT #1, R, N$, G$, E, NP, M, C
   IF E > 40 THEN PRINT R, N$, G$, E, NP, M, C
WEND
CLOSE #1
END
```

10. Write a program in C language that asks any two numbers and displays the greatest among them.

```c
#include<stdio.h>
#include<conio.h>
int main()
{
int a,b;
printf("Enter any two numbers:\n ");
scanf("%d %d", &a, &b);
if(a>b)
printf("The greatest number is %d", a);
else
printf("The greatest number is %d", b);
return 0;
        }
```

OR

Write a program in C-Langauge to display the series with their sum. 1,2,3,4….upto 10ᵗʰ terms.

```c
#include <stdio.h>
int main()
{
   int  j, sum = 0;
   printf("The first 10 natural number is :\n");
    for (j = 1; j <= 10; j++)
   {
     sum = sum + j;
     printf("%d ",j);
   }
   printf("\nThe Sum is : %d\n", sum);
}
```

***

5. SEE EXAMINATION 2078

1. Answer the following questions in one sentence: 6x1=6

a) Write the name of any two search engines.
    Ans: The name of any two search engines is google.com and ask.com

b) What is social media?
    Ans: Social Media is an online tool that helps us to stay connected with the whole world

c) Which data type is suitable to store photographs of students in MS-Access?
    Ans: The suitable data type to store photographs of students in MS-Access is
          OLE object.

d) Which view is used to modify a table structure in MS-Access?
    Ans: Design View is used to modify a table structure in MS-Access.

e) Which statement is used to call sub-procedure?
    Ans: CALL statement is used to call sub-procedure.

f) Write any two data types used in C language.
    Ans: Any two data types used in C language are int and char.

2. Write appropriate technical term for the following. 2x1=2

    a) A system of copying data and information reading in computer into another
      location. **<u>Backup</u>**

    b) A company which provides services of Internet. **<u>Internet Service Provider (ISP)</u>**

3. Write the full form of the following.   2x1=2

    a) FTP: **<u>File Transfer Protocol</u>**

    b) MAN: **<u>Metropolitan Area Network</u>**

4. Answer the following questions.   9x2=18

a) What is computer network? Write any two advantages of it.
Ans: Computer network is a group of two or more computers and devices connected to each other through wired or wireless media to exchange data and information and share hardware, software and other resources. Any two advantages of computer network are:
    1. A network connected computers can share hardware devices such as
      scanner, printer, hard disk, etc.
    2. Networking also provides the facility of data and software backup system.

b) Define software security. Write any two protection measures for it.
Ans: Software security is the protection of computer systems and applications from threats, such as hacking, virus attacks, and unauthorized access, to ensure their confidentiality, integrity, and availability.
    Any two protection measures for software security are:
    1. Backup   2. Password

c) What is search engine? Write any two popular search engines.

Ans: Search engine is the communication program that searches documents on the basis of specified keywords and returns a list of the web links that matches the keywords.
The name of any two popular search engines is google.com and ask.com

d) Define e-commerce. Write any two benefits of it.

Ans: E-Commerce refers to electronic transactions such as buying, selling and exchanging of goods, services and information over computer communication network such as the Internet.
Any two benefits of e-commerce are:
1. Faster buying/selling procedure, as well as easy to find products.
2. There are no geographical limitations, can deliver service globally.

e) Write ant two advantages and disadvantages of social media.

Ans: Any two advantages of social media are:
1. It creates awareness and innovate the way people live
2. Social media let us share anything with others around the world

Any two disadvantages of social media are:
1. Personal data and privacy can be easily hacked and shared on the internet.
2. More chances of creating fake accounts.

f) What is DBMS? Write any two advantages of it.

Ans: Database management system (DBMS) is a computerized system that stores data, processes them and provides information in an organized form.
Any two advantages of DBMS are:
1. Large volume of data can be stored and updated easily.
2. Provides data integrity and security.

g) What is primary key? Write any two features of it.

Ans: Primary Key is a special field or group of fields in the table that uniquely identifies each record from the database.
Any two features of primary key are:
3. To reduce and control duplication of the record in a table.
4. To set the relationship between tables.

h) Define field and record.

Ans: A field is a column in a table which contains information about a certain type for all records. Field is a smallest unit of information. A record is a row in a table which contains information about single items in a database. Record is complete set of information.

i) Define form. Write any two uses of it.

Ans: Form is one of the MS-Access database objects that is primarily used to create an interface for entering data in a table or multiple linked tables.
Any two uses of form are:
3. Form displays complete record one at a time, so we can view and modify records using the form.
4. Forms provides GUI (Graphical Users Interface) using which users interact with MS-Access database.

5. Write the output of the given program: (Workout with a dry run). 2

```
DECLARE SUB ABC(A)
CLS
A=2
CALL ABC(A)
END
SUB ABC(A)
FOR J= 1 TO 5
PRINT A;
A=A+3;
NEXT J
END SUB
```

Dry run

A	J=1 TO 5	PRINT A;	A=A+3
2	1 to 5 Yes	2	2+3=5
5	2 to 5 Yes	5	5+3=8
8	3 to 5 Yes	8	8+3=11
11	4 to 5 Yes	11	11+3=14
14	5 to 5 Yes	14	14+3=17
17	6 to 5 No (loop exits)		

The output of the program is
2 5 8 11 14

6. Re-write the given program after correcting the bugs: 2

```
DECLARE SUB Series ( )
CLS
EXECUTE Series
END
 SUB Series( )
REM Program to generate 1 1 2 3 5 .....upto the 20th terms
A=1
B=1
FOR ctr=10 to 1
DISPLAY A:B:
A=A+B
B=A+B
NEXT ctr
END Series ( )
```

Debugged Program

```
DECLARE SUB Series ( )
CLS
CALL Series
END

SUB Series( )
REM Program to generate 1 1 2 3 5 .....upto the 20th terms
A=1
B=1
FOR ctr=1 TO 10
PRINT  A; B;
A=A+B
B=A+B
NEXT ctr
END SUB
```

7. Study the following program and answer the given questions.   2x1=2
DECLARE FUNCTION TEST(X)
X=100
Z=TEST(X)
PRINT Z
END

FUNCTION TEST(X)
FOR R=1 TO X
S=S+I
NEXT R
TEST=S
END FUNCTION

a) How many parameters are used in the above program?
    Ans: The parameters are used in the above program is one.
b) How many times does the statement S=S+I execute in the above program?
    The statement S=S+I will execute 100 times in the above program

8. Convert / Calculate as per the instruction.   4x1=4
i) $(11111101)_2 = (?)_{16}$
Soln:

Paired Binary Digit	1111	1101
Binary Equivalent value	F	D

$(11111101)_2 = (FD)_{16}$

ii) $(245)_{10} = (?)_2$
Soln:

2	245	Remainder
2	122	1
2	61	0
2	30	1
2	15	0
2	7	1
2	3	1
2	1	1
	0	1

  $(245)_{10} = (11110101)_2$
 iii) $(1010)_2 \times (101)_2 = (?)_2$

		1	0	1	0
		x	1	0	1
		1	0	1	0
	0	0	0	0	x
1	0	1	0	x	x
1	1	0	0	1	0

 $(1010)_2 \times (101)_2 = (110010)_2$

iv) $(101110)_2 \div (110)_2$

110)	101110(	0111
	000	
	1011	
	-110	
	1011	
	-110	
	1010	
	-110	
	100	

Quotient = 111
Remainder = 100

9 a) Write a program in QBASIC that asks length, breadth of a room and calculate its area and perimeter. Create a user defined function to calculate area and sub program to calculate perimeter. [Hint: [Area=LxB], [p=2(L+B]]

```
DECLARE FUNCTION AREA (L,B)
DECLARE SUB PER(L,B)
CLS
INPUT "Enter Length"; L
INPUT "Enter Breadth"; B
PRINT "Area of rectangle="; AREA(L,B)
CALL PER(L,B)
END
FUNCTION AREA(L,B)
AREA = L*B
END FUNCTION
SUB PER(L,B)
P=2*(L+B)
PRINT "Perimeter of rectangle="; P
END SUB
```

b) Write a program to create a sequential data file "salary.dat" to store programmer's name, salary and post according to the need of the user.

```
OPEN "salary.dat" FOR OUTPUT AS #1
DO
CLS
INPUT "Enter name"; N$
INPUT "Enter Salary"; S
INPUT "Enter Post"; P$
WRITE #1, N$, S, P$
INPUT "Do you want to continue(Y/N)"; CH$
LOOP WHILE UCASE$(CH$)="Y"
CLOSE #1
END
```

10. Write a C program that asks a number and check whether it is negative, positive or zero.

<div align="center"><u>OR</u></div>

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

```
 #include<stdio.h>
 #include<conio.h>
 int main()
 {
 int n;
 printf("Enter any number: ");
 scanf("%d", &n);
 if(n>0)
 printf("%d is positive
number",n);
 else if(n<0)
 printf("%d is negative
number",n);
 else
 printf("%d is zero number",n);
 return 0;
 }
```

```
#include<stdio.h>
#include<conio.h>
int main()
{
int i, a;
i=1;
a=1;
while(i<=10)
{
   printf("%d \n", a);
   a=a+2;
   i++;
}
return 0;
}
```

***

6. PABSON BOARD EXAMINATION 2079 [SET A]

Group "A"

Answer the following questions in one sentence: [6x1=6]

a) Define database.

Ans: Database is a collection of systematically organized inter-related data which stores, organizes and retrieves data.

b) What will be the value of 'y' in given C expression, y=64%5?

Ans: The value of y will be 4.

c) What is digital signature?

Ans: Digital signature is a security mechanism system used on the internet for data and information transaction by attaching a code at the end of the electronic message that confirms the authenticity of sent message.

d)   What is hardware security?

Ans: Hardware security is the protection given to the various hardware tools and equipment used in computer system from the accidental or intentional harm..

e)   What is global variable.

Ans: A variable which can be accessed from any module or procedure of a program is known as a global variable.

f)   Define IP address.

Ans: IP address is an unique numerical identifier for every device or network that connects to the internet.

2. Write appropriate technical terms for the following: [2x1=2]

a)   The money that is exchanged electrically. **Digital currency**

b)   A computer which provides the services to the other computer in a network. **Server**

3.   Write the full form of the following: [2x1=2]

   a) SMPS- **Switched Mode Power Supply**

   b) ISP- **Internet Service Provider**

Group "B"

4. Answer the following questions in short : [9x2=18]

a)   What is network topology? List them.

Ans: Network topology is the inter-connected pattern of network components.

Its types are: bus topology, ring topology and star topology

b)   Define two major uses of internet.

Ans: Any two major uses of internet are:

- The internet is used for sending and receiving emails, instant messaging, video calls, and more.

- The internet is a vast source of information and provides access to a wealth of knowledge and data.

c)   What is data sorting. Give any two examples.

Ans: The process of arranging all the records in a table either ascending or descending order based on field or fields is known as sorting. Sorted data is easier to handle than unsorted data

Any two examples of data sorting are:

Alphabetical sorting: Sorting a list of names in alphabetical order, such as arranging a phonebook by last name.

 Numerical sorting: Sorting a list of numbers in ascending or descending order, such as arranging a list of exam scores from highest to lowest.

d)   Define online payment with example.

Ans: Online payment refers to the payment for buying goods or services through the Internet using different online payment gateway.

Eg: eSewa Nepal, iPay, Khalti, etc.

e) Write any two features of C programming language?

Ans: Any two features of c programming language are:

- C is a Structured Programming Language. which break down a program in several small modules and makes the programmer easier to manage and debug the code.
- C is a case-sensitive programming language. It understands the capital alphabets and small alphabets as different values.

f)   What is report? Mention its uses.

Ans: Report is one of the MS-Access database objects used to present information in an effective and organized format that is ready for printing.

Its Uses are:

- Reports provide a formatted presentation of data that is easy to read and understand.
- Reports enable users to summarize, analyze, and visualize data in meaningful ways.

g. Write the difference between data and information.

Data	Information
Data are raw form of any facts, figures or entities which does not give any meaning.	Information is the organized collection of inter-related data which has significant meaning
For example, Aaradhya, 1000, account, balance etc. are raw data individually does not give any meaning.	For example, Aaradhya has 1000 balance in his bank account gives significant meaning

h. What is firewall in computer. Write its type.

Ans: A firewall is the network security systems that monitors and controls the traffic flow between the Internet and private network on the basis of a set of user-defined rules.

Its Types are:

- Network Firewall: A security system placed between a private internal network and the internet to monitor and control incoming and outgoing network traffic.
- Host-based Firewall: A software program installed on a single computer or device to monitor and control incoming and outgoing network traffic for that specific device.

i. Define DBMS with example.

DBMS is a computerized system that stores data, processes them and provides information in an organized form. E.g. MS-Access, Oracle, MySQL, Fox Pro etc

5.   Write down the output of the given program with dry run table. [2]

```
DECLARE SUB PATTERN(N)
CALL PATTERN
END
SUB PATTERN
A=2
FOR I=1 TO 5
PRINT A;
A=A+2
NEXT I
END SUB
```

Dry Run

A	I=1 TO 5	PRINT A;	A=A+2	
2	1 TO 5 YES	2	2+2=4	
4	2 TO 5 YES	4	4+2=6	
6	3 TO 5 YES	6	6+2=8	
8	4 TO 5 YES	8	8+2=10	
10	5 TO 5 YES	10	10+2=12	
12	6 TO 5 NO			

Output

2 4 6 8 10

6. Re-write the given program after correcting the bug.   **[2]**

```
FUNCTION SUM(M, N)
REM to print sum of two numbers
A=6
B=7
DISPLAY sum(M,N)
END

FUNCTION SUM(M,N)
S=M+N
S=SUM
END FUNCTION
```
Debugged Program
```
DECLARE FUNCTION SUM(M, N)
REM to print sum of two numbers
A=6
B=7
PRINT sum(A,B)
END

FUNCTION SUM(M,N)
S=M+N
SUM=S
END FUNCTION
```

7.   Study the following programs and answer the given questions.   [2x1=2]
```
DECLARE FUNCTION ODDEVEN$(N)
CLS
INPUT "Enter a number"; N
PRINT "Number is"; ODDEVEN$(N)
END

FUNCTION ODDEVEN$(N)
IF N MOD 2=0 THEN
MS$="even"
ELSE
MS$="odd"
END IF
ODDEVEN$=MS$
END FUNCTION
```
a)   What is the main objective of above program?
    Ans: The main objective of the above program is to check whether the input number is even or odd.
b)   What is the use of MOD in above program?.
    Ans: The use MOD in the above program is to determine the remainder of a division operation

Group C

8.   Convert /Calculate as per the instruction.   [4x1=4]
a) $(1110001110)_2 = (?)_8$

Paired Binary Digit	001	110	001	110
Binary Equivalent value	1	6	1	6

$(1110001110)_2 = (1616)_8$

b) $(111)_{10} = (?)_2$

2	111	Remainder
2	55	1
2	27	1
2	13	1
2	6	1
2	3	0
2	1	1
2	0	1

$(111)_{10} = (1101111)_2$

c) $(1000)_2 - (111)_2 = (?)_2$

	1	0	0	0
-		1	1	1
	0	0	0	1

$(1000)_2 - (111)_2 = (0001)_2$

d) $(111111)_2 \div (111)_2$

111)	111111(	1001
	-111	
	000111	
	-111	
	000	

Quotient = 1001
Remainder = 0

9.   **a. Write a program in QBASIC to display greater number using function procedure and smaller number using sub procedure among three numbers.**

```
DECLARE FUNCTION GREAT(A,B,C)
DECLARE SUB SMALL(A,B,C)
CLS
INPUT"ENTER FIRST NUMBER";A
INPUT"ENTER SECOND NUMBER";B
INPUT"ENTER THIRD NUMBER";C
PRINT"THE GREATEST NUMBER IS: ";GREAT(A,B,C)
CALL SMALL(A,B,C)
END

FUNCTION GREAT(A,B,C)
IF A>B AND A>C THEN
GREAT=A
ELSEIF B>A AND B>C THEN
GREAT=B
ELSE
GREAT=C
END IF
END FUNCTION

SUB SMALL(A,B,C)
IF A<B AND A<C THEN
PRINT"THE SMALLEST NUMBER IS ";A
ELSEIF B<A AND B<C THEN
PRINT"THE SMALLEST NUMBER IS ";B
ELSE
PRINT"THE SMALLEST NUMBER IS ";C
END IF
END SUB
```

b. Create a sequential data file to store name and mark obtained in English, Math and Science subjects for few students.

```
 OPEN "std.dat" FOR OUTPUT AS #1
DO
CLS
INPUT "Enter name"; N$
INPUT "Enter marks in English"; E
INPUT "Enter marks in math"; M
INPUT "Enter marks in science"; S
WRITE #1, N$, E, M, S
INPUT "Do you want to continue(Y/N)"; CH$
LOOP WHILE UCASE$(CH$)="Y"
CLOSE #1
END
```

10. Write a program in C-language to display first 10 natural numbers. [4]

```c
#include<stdio.h>
int main ( )
{
int i;
for(i=1;i<=10;i++)
{
printf(" \n %d",i);
}
return 0;
}
```

<div align="center">OR</div>

Write a 'C' program that takes principle, rate and time as input and it calculate the simple interest.

```c
 #include<stdio.h>
int main()
{
float p,t,r,i;
printf("enter principal: ");
scanf("%f",&p);
printf("enter time: ");
scanf("%f",&t);
printf("enter rate: ");
scanf("%f",&r);
i=(p*t*r)/100;
printf("simple interest is %f",i);
return 0;
}
```

<div align="center">***</div>

7. PABSON BOARD EXAMINATION 2079 [SET B]

Group "A"

Answer the following questions in one sentence: [6x1=6]

a) **What is search engine ?**

Ans: Search engine is the communication program that searches documents on the basis of specified keywords and returns a list of the web links that matches the keywords.

b) What is digital currency?

Ans: Digital currency is a type of electronic money that is stored and exchanged using computers and other digital devices.

c) **Define MS Access.**

Ans: MS-Access is a relational database management system developed by Microsoft Corporation which is used to store and manipulates large volume of data in multiple tables.

d) **What is Software security?**

Ans: Software security is the protection of computer systems and applications from threats, such as hacking, virus attacks, and unauthorized access, to ensure their confidentiality, integrity, and availability.

e) **What is Cloud computing?**

Ans: Cloud computing is a technology that allows users to access and use of computing resources, like servers and software, over the internet.

f) **Write any two features of C programming language?**

Ans: Any two features of c programming language are:

- C is a Structured Programming Language. which break down a program in several small modules and makes the programmer easier to manage and debug the code.
- C is a case-sensitive programming language. It understands the capital alphabets and small alphabets as different values.

2. Write appropriate technical terms for the following: [2x1=2]

a) A company that provides Internet service to customers. **Internet Service Provider (ISP)**

b) A powerful program that controls and coordinates a computer's hardware devices and runs software and applications. **Operating System**

3. **Write the full form of the following:** [2x1=2]

a) SMTP- **Simple Mail Transfer Protocol**

b) POS- **Point Of Sale**

Group "B"

4. Answer the following questions in short : [9x2=18]

a) **What is the difference between Switch and Router?**

Switch	Router
-A switch connects devices within a local area network (LAN) and allows them to communicate with each other. -Switch is used for local communication within a LAN	-Router connects multiple LANs to form a wide area network (WAN) and routes data packets between them. -Router is used for communication between different LANs or networks.

b) **Define two major uses of internet.**

Ans: Any two major uses of internet are:

- The internet is used for sending and receiving emails, instant messaging, video calls, and more.
- The internet is a vast source of information and provides access to a wealth of knowledge and data.

c)   What is data sorting. Give any two examples.

Ans: The process of arranging all the records in a table either ascending or descending order based on field or fields is known as sorting. Sorted data is easier to handle than unsorted data

Any two examples of data sorting are:

Alphabetical sorting: Sorting a list of names in alphabetical order, such as arranging a phonebook by last name.

Numerical sorting: Sorting a list of numbers in ascending or descending order, such as arranging a list of exam scores from highest to lowest.

d)   Define online payment with example.

Ans: Online payment refers to the payment for buying goods or services through the Internet using different online payment gateway.

Eg: eSewa Nepal, iPay, Khalti, etc.

e)   What is hardware security ? Write any two security measures of it.

Ans: Hardware security is the protection given to the various hardware tools and equipment used in computer system from the accidental or intentional harm.

Any two security measures of it are: Insurance and Regular Maintenance.

f)   What is report? Mention its uses.

Ans: Report is one of the MS-Access database objects used to present information in an effective and organized format that is ready for printing.

Its Uses are:

• Reports provide a formatted presentation of data that is easy to read and understand.

• Reports enable users to summarize, analyze, and visualize data in meaningful ways.

g. What do you understand by Data Redundancy?

Ans: Data redundancy is the duplication of data within a database.

Data redundancy can be controlled by normalizing the database, eliminating duplicate data and storing it in separate tables, and using foreign keys to establish relationships between the tables.

h. What is firewall in computer. Write its type.

Ans: A firewall is the network security systems that monitors and controls the traffic flow between the Internet and private network on the basis of a set of user-defined rules.

Its Types are:

- Network Firewall: A security system placed between a private internal network and the internet to monitor and control incoming and outgoing network traffic.

- Host-based Firewall: A software program installed on a single computer or device to monitor and control incoming and outgoing network traffic for that specific device.

i)   What is primary key? Write its importance.

Ans: A primary key is a field or combination of fields in a table that uniquely identifies each record, and is used to establish relationships between tables and enforce data integrity.

Its importance are:

-       It reduces and control duplication of records in a table.

-       It sets the relationship between tables.

5.   Write down the output of the given program with dry run table. [2]
DECLARE SUB NUMBER ()
CLS
CALL NUMBER
END
SUB NUMBER
N=3:C=1
WHILE C<=5
    PRINT N
    N=N*10+3
    C=C+1
WEND
END SUB

Dry Run

N	C	WHILE C<=5	PRINT N	N=N*10+3	C=C+1
3	1	1<=5 yes	3	33	1+1=2
33	2	2<=5 yes	33	333	2+1=3
333	3	3<=5 yes	333	3333	3+1=4
3333	4	4<=5 yes	3333	33333	4+1=5
33333	5	5<=5 yes	33333	333333	5+1=6
333333	6	6<=5 no (loop exits)			

Output
3
33
333
3333
33333

6. Re-write the given program after correcting the bug.   **[2]**

REM   To store name and age in a sequential data file STD.DOC
OPEN STD.DOC FOR OUT AS#1
CLS
INPUT "Enter name";N
INPUT "Enter age";A
WRITE 1,N$,A
CLOSE #1
END

Debugged Program
REM To store name and age in a sequential data file STD.DOC
OPEN **"STD.DOC"** FOR **OUTPUT** AS#1
CLS
INPUT"Enter name";**N$**
INPUT"Enter age";A
WRITE **#1,**N$,A
CLOSE #1
END

7. **Study the following programs and answer the given questions.** [2x1=2]

```
DECLARE SUB question (a, b, c)
CLS
x=10: y=20 : z=15
CALL question(x,y,z)
END
SUB question(a,b,c)
a = a +10
b = b + a
c = a + b
PRINT a,b,c
END SUB
```

a) **What would be its output if x=1,y=2, z=3?**

Ans: The output would be 11 13 24.

b) **Write actual and formal parameters used in the program.**

Ans: Actual parameters- x,y,z   Formal parameters-a,b,c

Group C

8. **Convert /Calculate as per the instruction.** [4x1=4]

a) $(1110011010)_2 = (?)_8$
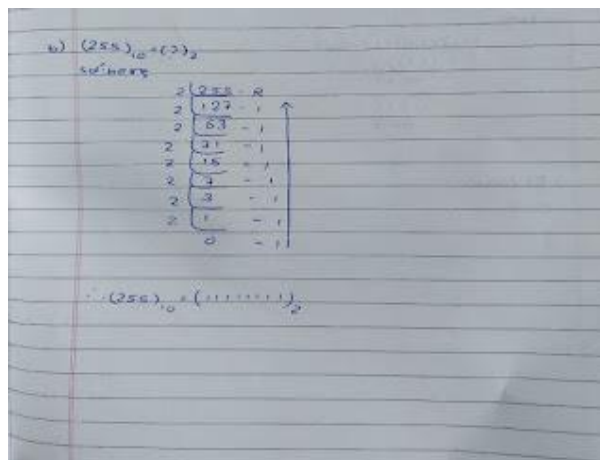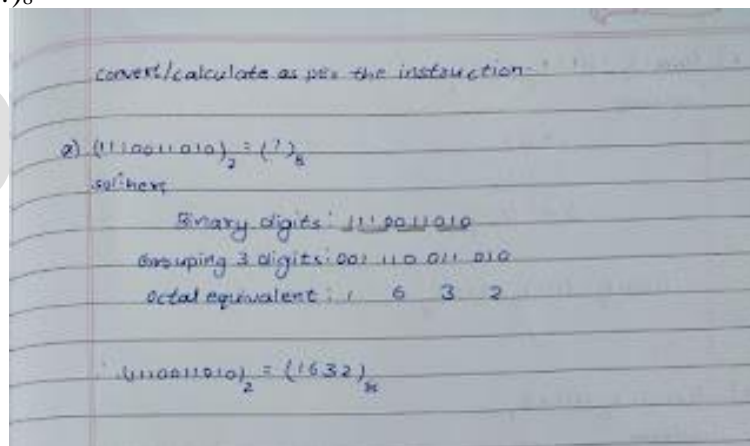
b)　　$(255)_{10} = (?)_2$

c)　　$(1001)_2 - (111)_2 = (?)_2$

d)　　$(111111)_2 \div (111)_2$

9. 　**a. Write a program in QBASIC to display greater number using function procedure and smaller number using sub procedure among three numbers.**

```
 DECLARE FUNCTION GREAT(A,B,C)
DECLARE SUB SMALL(A,B,C)
CLS
INPUT"ENTER FIRST NUMBER";A
INPUT"ENTER SECOND NUMBER";B
INPUT"ENTER THIRD NUMBER";C
PRINT"THE GREATEST NUMBER IS: ";GREAT(A,B,C)
CALL SMALL(A,B,C)
END

FUNCTION GREAT(A,B,C)
IF A>B AND A>C THEN
GREAT=A
ELSEIF B>A AND B>C THEN
GREAT=B
ELSE
GREAT=C
END IF
END FUNCTION
```

```
SUB SMALL(A,B,C)
IF A<B AND A<C THEN
PRINT"THE SMALLEST NUMBER IS ";A
ELSEIF B<A AND B<C THEN
PRINT"THE SMALLEST NUMBER IS ";B
ELSE
PRINT"THE SMALLEST NUMBER IS ";C
END IF
END SUB
```

b. A sequential data file called "record.txt " has stored data under the field heading Roll No., Name, Gender, English, Nepali ,Maths and Computer. Write a program to display all the information of those students whose gender is 'F' and obtained marks in computer is more than 90.

```
OPEN "record.txt" FOR INPUT AS #1
CLS
WHILE NOT EOF(1)
INPUT #1,R,N$,G$,E,N,M,C
IF UCASE$(G$)="F" AND C>90 THEN
PRINT R,N$,G$,E,N,M,C
END IF
WEND
CLOSE #1
END
```

10. Write a program in C-language to display first 10 natural numbers. [4]

OR

Write a 'C' program that takes principle, rate and time as input and it calculate the simple interest.

```c
#include<stdio.h>
int main()
{
float p,t,r,i;
printf("enter principal: ");
scanf("%f",&p);
printf("enter time: ");
scanf("%f",&t);
printf("enter rate: ");
scanf("%f",&r);
i=(p*t*r)/100;
printf("simple interest is %f",i);
return 0;
}
```

```c
#include<stdio.h>
int main ( )
{
int i;
for(i=1;i<=10;i++)
{
printf(" \n %d",i);
}
return 0;
}
```

***

8. PABSON BOARD EXAMINATION 2079 [SET C]

Group A

1. Answer the following questions in one sentence.

a) Where does intranet has been used?
Ans: Intranet has been used to share internal information and resources within an organization.

b) Write any two benefits of cloud computing.
Ans: Any two benefits of cloud computing are
It allows to quickly and easily access, store information anywhere, anytime in the whole world, using an internet connection.
It is easier to get back-up and restore the data.

c) Which data type is used to store date of birth of an employee in MS-Access?
Ans: Date/Time data type is used to store date of birth of an employee in MS-Access

d) Write any two data type used in MS-Access database ?
Ans: Any two data type used in MS-Access database are text and number

e) What are procedure in QBASIC?
Ans: The procedure used in QBASIC are SUB procedure and FUNCTION procedure

f) Write any two features in 'C' language.
Ans: Any two features in 'C' language
- C is a Structured Programming Language which break down a program in several small modules and makes the programmer easier to manage and debug the code.
- C is a case-sensitive programming language. It understands the capital alphabets and small alphabets as different values.

2. Write appropriate technical term for the following. [2x1=2]
a) The protocol that makes the network communication possible. **TCP/IP**
b) Digital marks created while using Internet. **Digital Footprint**

3. Write the full form of the following. [2x1=2]
 (a) ISDN – **Integrated Services Digital Network**
 b) TCP/IP – **Transmission Control Protocol / Internet Protocol**

 Group B

Answer the following question in short. 9x2=18

a) Differentiate between peer to peer and client-server network with figure.

client-server network	peer to peer network
The network model where one or more powerful computers (servers) provide the different network services and all other users of computer network (clients) access those services to perform user's tasks is known as client-server network	Peer to peer is a type of network model where all nodes on the network have an equal relationship with each other. It can share data, hardware and software with each other.
It provides central security administration and the network administrator is responsible for data security and other resources management of the network	It lacks centralized network administration, where the network administrator needs to manage security on each computer. It provides no reliable security and might put data in higher risks.

b) What is cyber ethics? Give any two example of it.
Ans: Computer ethics is a set of moral principles or code of conducts that regulate the use of computers systematically without making harm to other users.
Any two examples of computer ethics are
- Do not use a computer to publish fake information.
- Do not search the file or record of other people.

(c) What is software security? Write any two measures of software security.
Ans: Software security is the protection of computer systems and applications from threats, such as hacking, virus attacks, and unauthorized access, to ensure their confidentiality, integrity, and availability.
Any two measures of software security are:
backup
password

(d) Define E-Commerce ? Write its importance.
Ans: E-Commerce refers to electronic transactions such as buying, selling and exchanging of goods, services and information over computer communication network such as the Internet.
The importance of e-commerce is to reduce cost, lower the product cycle time, faster customer response and deliver the better quality service.

e) Why mobile computing is necessary in present time? Write any two importance of it.
Ans: Mobile computing refers to a variety of devices that allow people to access data and information from wherever they are via a mobile device.
Any two importance of mobile computing are:
- It allows people to work and communicate from anywhere at any time.
- It keeps connected to the Internet, allowing to access information all the times.

f) Differentiate between Primary key and Foreign key with example.

Primary key	Foreign key
A primary key is a field or combination of fields in a table that uniquely identifies each record, and is used to establish relationships between tables and enforce data integrity	A foreign key in MS Access is a field that establishes a relationship between two tables by referencing the primary key of another table
The primary key doesn't allow null values.	Foreign key accepts multiple null values.
For example, in a table of employees, each employee might have an ID number as their primary key.	For example, in a table of orders, the foreign key might be the customer ID number, linking the orders table to a table of customer information.

g) What is query? List any two advantages of it.
Ans: Query is an object of database that is used to view, retrieve, change and analyze records from a table or multiple linked tables based on specified condition..
Any two advantages of query are:
- Queries enable users to retrieve specific data from tables or other data sources, based on specified criteria.
- Queries allow users to filter, sort, and group data in meaningful ways.

h) What is data sorting ? List any two advantages of using it.
Ans: The process of arranging all the records in a table either ascending or descending order based on field or fields is known as sorting.
The advantages of sorting are:
Sorting helps to organize data and make it easier to find and retrieve specific information.
- Sorting can save time and improve efficiency by allowing users to quickly access the data they need.

 i) Define form. Write its importance

Ans; Form is one of the MS-Access database objects which provides graphical interface to view, modify and add data in a table or multiple linked tables.

The importance of form are:

* Forms provide an easy-to-use interface for data entry and manipulation, improving data accuracy and completeness.
* Forms can include validation rules to ensure data quality and prevent errors.

5. Write down the output of the given program. Show with dry run in table.

DECLARE SUB SERIES ()
CLS
CALL SERIES
END

SUB SERIES ( )
X=1
Y=2
FOR P =1 TO 10
PRINT X;
X=X+Y
Y=Y+1
NEXT P
END SUB

Dry run

X	Y	P=1 TO 10	PRINT X;	X=X+Y	Y=Y+1
1	2	1 TO 10 Yes	1	1+2=3	2+1=3
3	3	2 TO 10 Yes	3	3+3=6	3+1=4
6	4	3 TO 10 Yes	6	6+4=10	4+1=5
10	5	4 TO 10 Yes	10	10+5=15	5+1=6
15	6	5 TO 10 Yes	15	15+6=21	6+1=7
21	7	6 TO 10 Yes	21	21+7=28	7+1=8
28	8	7 TO 10 Yes	28	28+8=36	8+1=9
36	9	8 TO 10 Yes	36	36+9=45	9+1=10
45	10	9 TO 10 Yes	45	45+10=55	10+1=11
55	11	10 TO 10 Yes	55	55+10=65	11+1=12
66	12	11 TO 10 No Loop Exits			

 The output of the program

1 3 6 10 15 21 28 26 45 55

6. Re-write the given program after correcting the bugs: [2]
REM to store record in data file
 CLS
OPEN "employee.dat" FOR INPUT AS #1
DO
INPUT "Enter Name, address and gender": NS, A. G
INPUT #1, NS, A. G
INPUT "Do you want to continue "; Y$
WHILE UCASE$(Y$) = "Y"
CLOSE "employee.dat"
END

Debugged Program
CLS
OPEN "employee.dat" FOR **OUTPUT** AS #1
DO
INPUT "Enter Name, address and gender": NS, **A$, G$**
WRITE #1, NS, **A$, G$**
INPUT "Do you want to continue "; Y$
LOOP WHILE UCASE$(Y$) = "Y"
CLOSE **#1**
END

7. Study the following program and answer the given questions: [2]
 DECLARE FUNCTION text$(N$)
CLS
INPUT "Enter any string":X$
PRINT text$(X$)
END

FUNCTION text$(N$)
FOR i=len (N$) TO 1 STEP-1
W$=W$+MID$(N$,i,1)
NEXT i
text$ = WS
NEXT Q
 END FUNCTION

Questions:

a) What is the main objective of above program?
Ans: The main objective of above program is to reverse the input string.

b) List all the parameters used in above program.
Ans: The parameters used in above program are X$ and N$
 Group C
 8. Convert/ Calculate as per the instruction.
a) (10111101) 2 = (2)8
Soln:

Paired Binary Digit	10	111	101
Binary Equivalent value	2	7	5

(10111101) 2 = (275)8

c) (10101) 2 X (111)

		1	0	1	0	1
			x	1	1	1
		1	0	1	0	1
	1	0	1	0	1	x
1	0	1	0	1	x	x
10	0	1	0	0	1	1

(10101)2×(111) 2 = (10010011)2

b) (645) 10 = (?)16

16	645	Remainder
16	40	5
16	2	8
	0	2

(645) 10 = (285)16

d) (111110) / (110)

110)	111110	1010
	-110	
	00111	
	-110	
	0010	
	-0	
	10	

Quotient = 1010
Remainder = 10

9. a) Write a program in QBASIC to input length and breadth of room and calculate its area using function and perimeter using sub procedure. [Hint: Area = lxb.
Perimeter = 2(l+b)]

```
DECLARE FUNCTION AREA (L,B)
DECLARE SUB PERI(L,B)
CLS
INPUT "ENTER LENGTH";L
INPUT "ENTER BREADTH"; B
PRINT "AREA OF RECTANGLE="; AREA(L,B)
CALL PERI(L,B)
END

FUNCTION AREA(L,B)
AREA=L*B
END FUNCTION

SUB PERI(L,B)
P=2*(L+B)
PRINT "PERIMETER OF RECTANGLE="; P
END SUB
```

b) A sequential data file called "Records.dat" has stored data under the field heading Roll No., Name, Gender, English, Nepali, Maths and Computer. Write a program to display all the records of students whose marks in computer is more than 90.

```
OPEN "Records.dat" FOR INPUT AS #1
CLS
WHILE NOT EOF(1)
INPUT #1, R, N$, G$, E, N, M, C
IF C>90 THEN PRINT R; N$; G$; E; N; M; C
WEND
CLOSE #1
END
```

10. Write a program in C to sum of odd number from 80 to 90.

```
#include <stdio.h>
int main()
{
    int i, s=0;
    for(i=81; i<=90; i=i+2)
        s=s+i;
        printf("Sum of odd numbers from 80 to 90= %d", s);
    return 0;
}
```

OR

Write a program in 'C' language to input three number and find greatest number among three numbers.

```
#include <stdio.h>
 int main()
{
    int a, b, c;
     printf("Enter any three numbers");
    scanf("%d %d %d", &a, &b, &c);
     if (a > b && a > c)
       printf("%d is the largest number.", a);
     else if (b > a && b > c)
       printf("%d is the largest number.", b);
     else
       printf("%d is the largest number.",c);

    return 0;
}
```

***

9. PABSON BOARD EXAMINATION 2079 [SET D]

Answer the following questions in one sentence:

1. In which communication media data transfer is the fastest?

Ans . In Fiber optic cable, data transfer is the fastest.

2. What is cyber-crime?

Ans. Cyber crime refers to criminal activities that are carried out using computers, networks and the internet.

3. What is topology?

Ans. Network topology is the inter-connected pattern of network components.

4. What is primary key?

Ans. Primary Key is a special field or group of fields in the table that uniquely identifies each record from the database.

5. Write the types of parameters?

Ans. The types of parameters are actual and formal parameters.

6. How many keywords are in C language?

Ans. There are 32 keywords in C language.

Write appropriate technical term for the following:
a. A main computer of a computer network. <u>Server</u>
b. A malicious program of computer that damages data and Software. <u>Malware</u>

3.Write the full form of the following:

a) WLAN – Wireless Local Area Network

b) POP – Post Office Protocol

B. Answer the following questions.

1.What is data communication? Write the basic elements of data communication.

Ans. Data communication is the process of transferring data and information between computers and other electronic devices.

The basic elements of data communication are: data (message), sender, medium, receiver and protocol.

2.What is computer ethics? Write any two commandments of computer ethics.

Ans. Computer ethics is a set of moral principles or code of conducts that regulate the use of computers systematically without making harm to other users

Two commandments of computer ethics are:

Do not use a computer to publish fake information.

Do not search the file or record of other people.

3.What is digital citizenship? List out the major themes of digital citizenship.

Ans. Digital citizenship refers to the responsible and ethical use of technology and the internet which involves understanding, practicing, and promoting appropriate behavior when using digital tools and resources.

Major themes of digital citizenship are :

λDigital Access: The state of full electronic participation in society

λ Digital Commerce: The act of promoting the purchase of goods through electronic means

λ Digital Communication: Electronic exchange of information

λ Digital literacy: Teaching and learning about teaching and technology

4.What is online payment? Write some different modes of electronic payment.

Ans. Online payment refers to the payment for buying goods or services through the Internet using different online payment gateway.

 Some modes of electronic payment are:

a) Credit Card

b) Debit Card

c) Smart Card

e) Electronic Fund Transfer (EFT)

5.What is hardware security? Write the role of Ups in hardware security.

Ans. Hardware security is the protection given to the various hardware tools and equipment used in computer system from the accidental or intentional harm.

UPS protects hardware security by controlling fluctuation of electric voltage and provides enough backup electric power to the computer system when there is power failure.

6.What is database? Write any two examples.

Ans. A collection of systematically organized inter-related data which store, organize and retrieve data is called database.

Two examples of database are : Dictionary and Marks ledger.

 7.What is table in Access? In how many ways we can create a table in Ms Access?

Ans Tables are the primary building block of database which stores and manages large volume of data into rows and column.

Ways to create a table in Ms Access are :

Design view

Datasheet view

Using wizard

8.What is action query? Write its type.

Ans. An action query is a type of query that makes changes to or removes many records in just one operation.

It's types are :

- Append Query: Adds new records to an existing table.

- Update Query: Modifies existing records in a table.

- Delete Query: Deletes records from a table.

- Make Table Query: Creates a new table based on data from one or more tables.

9.Name any four objects of Ms-Access .

Ans. Four objects of Ms-Access are:

- Table
- Query
- Form
- Report

 C. Write down the output of the given program. Show with dry run in table

```
 DECLARE SUB SERI()
CLS
CALL SERI
END

SUB SERI
X# = 1
FOR I = 1 TO 5
PRINT X# * X#
X# = X# * 10 +1
NEXT I
END SUB
```

Dry Run Table

X#	I=1 To 5	PRINT X# * X#	X# = X# * 10 +1
1	1 to 5 'yes'	1	11
11	2 to 5 'yes'	121	111
111	3 to 5 'yes'	12321	1111
1111	4 to 5 'yes'	1234321	11111
11111	5 to 5 'yes'	123454321	111111
111111	6 to 5 'no' Loop exits		

The output of the program is
1
121
12321
1234321
123454321

D. Rewrite the given program after correcting the bugs.

REM to create sequential data file "record.dat" to enter some records.
CLS
OPEN "record.dat" FOR INPUT AS #1
UP:
INPUT "ENTER NAME";N$
INPUT "ENTER ADDRESS";A$
INPUT "ENTER PHONE NUMBER";PH
WRITE #2, N$,A$,PH
INPUT "Do you want to continue(y/n)?";an
IF LCASE(an$)="y" THEN GOTO UP
CLOSE #1
END

Debugged program
REM to create sequential data file "record.dat" to enter some records.
CLS
OPEN "record.dat" FOR **OUTPUT** AS #1
UP:
INPUT "ENTER NAME";N$
INPUT "ENTER ADDRESS";A$
INPUT "ENTER PHONE NUMBER";PH
WRITE **#1,** N$,A$,PH
INPUT "Do you want to continue(y/n)?";**an$**
IF **LCASE$**(an$)="y" THEN GOTO UP
CLOSE #1
END

E. Study the following program and answer the given questions:
DECLARE FUNCTION TEST (A)
X = 10
Z = TEST (X)
PRINT Z
END

FUNCTION TEST (B)
 FOR I = 1 TO B
 S = S + I * I
NEXT I
TEST= S
END FUNCTION.
Questions:
a) **How many parameters are used in the above program?**
   Ans. 1 parameter is used in the above program.
b) **How many times does the statement S=S + I * I will be executed in the above program?**
   Ans. The statement S= S + I * I will be executed 10 times.

F. Convert as per instructions.
a) $(110111)_2$ into $(?)_8$
Ans.
Binary digits : 110111
Grouping 3 digits : 110 111
Octal equivalent : 6 7
∴ $(110111)2 = (67)8$
b)$(25AF)_{16}$ into $(?)_{10}$
Ans.
$= 2 \quad 16^3 + 5\times16^2 + 10\times16^1 + 15\times16^0$
$= 2 * 4096 + 5*256 + 10*16 + 15*1$
$= 8192 + 1280 + 160 + 15$
$= 9647$
$(25AF)_{16}$ into $(9647)_{10}$
c)110110 + 100011
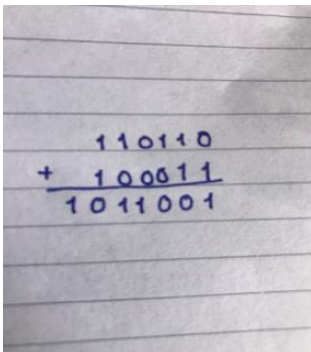
d)1110001 ÷ 110
Ans.
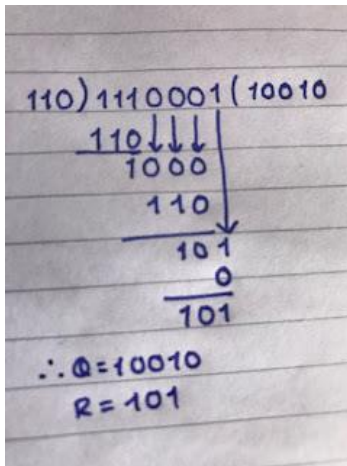
9a. Write a program in QBasic that ask the radius and height of a cylinder and calculate the volume and curve surface area. Create a user-defined function to calculate volume and sub-procedure to calculate curve surface area of a cylinder. [Hints: V=πr2 h, CSA=2πrh]
Ans.
DECLARE FUNCTION VOL(R,H)
DECLARE SUB CSA(R,H)
CLS
INPUT "ENTER THE RADIUS";R
INPUT "ENTER THE HEIGHT";H
PRINT "THE VOLUME OF CYLINDER IS ";VOL(R,H)
CALL CSA(R,H)
END

FUNCTION VOL(R,H)
VOL = 3.14*R*R*H
END FUNCTION
SUB CSA(R,H)
C = 2*3.14*R*H
PRINT "THE CURVE SURFACE AREA OF CYLINDER IS "; C
END SUB

b. A sequential data file called "Emp.dat" has stored data under the field heading name, post and salary. Write a program to display the records of those employees whose salary is more than Rs. 25000.
Ans.
OPEN "Emp.dat" FOR INPUT AS #1
CLS
WHILE NOT EOF(1)
INPUT #1,N$,P$,S
IF S > 25000 THEN PRINT N$,P$,S
WEND
CLOSE #1
END

10. Write a program in C language to ask to enter two numbers and find out sum and product.
Ans.
```
#include<stdio.h>
int main()
{
Int a,b,s,p;
printf("enter first number ");
scanf("%d",&a);
printf("enter second number ");
scanf("%d", &b);
s = a + b;
p = a * b;
printf("the sum of two numbers is %d",s);
printf("the product of two numbers is %d",p);
return 0;
}
```

Write a C program to ask to enter a number then find out whether it is even or odd.
Ans.
```
#include<stdio.h>
Int main()
{
Int n;
printf("enter any number");
scanf("%d",&n);
if(n%2 = = 0)
printf("The given number is even");
else
printf("The given number is odd");
return 0;
}
```

***

10. JOINT EXAM BOARD (PABSON BKT) 2079

Group A (10 Marks)

(a) What is an e-mail?
E-mail is the most widely used service on the Internet which sends and receives messages electronically through the Internet

(b) What is cyber law?
The law which governs the legal issues in the cyber space regarding the internet or WWW for digital data processing and transaction is called cyber law

(c) What is bandwidth?
The amount of data that can be carried from one point to another in a given time period is called bandwidth.

(d) Write any two data types of MS-Access.
Any two data type of MS Access are Date/Time and Currency

(e) What is parameters?
Parameters are variables which are used to specify or declare types of data to be passed to the procedures either sub or function

(f) What is C?
C Language is a high-level structured programming language which is used to develop system software.

2. Write appropriate technical term for the following
(a) Law that governs the legal issues of cyberspace. Cyber Law
(b) Business through internet. E-commerce

3. Write the full form of the following:
UTP – Unshielded Twisted Pair
IoT – Internet of Things

4. Answer the following questions:
(a) Define mode of communication.
Data transmission mode is the way of transmission of data from one location to another.
There are three types of transmission mode:

Simplex mode
Simplex mode is the transmission of data and information that takes place in only one direction. It is a unidirectional mode of data transmission.
Radio, newspaper, television broadcasting, books etc. are examples of simplex mode.

Half duplex mode
Half-duplex is the transmission of data and information that flows in both directions but only one direction at a time.
Walky-talky and wireless handset are examples of half-duplex mode.

Full duplex mode
Full duplex mode is the transmission of data and information that flows in both direction simultaneously on the transmission path.
Mobile and landline phones are examples of full duplex mode

(b) What is digital footprint? Write any two tips to maintain digital reputation.
A digital footprint is the trail of data and information left behind by an individual's online activities which includes social media posts, website visits, online purchases, and other digital engagements.
Any two tips to maintain digital reputation are:
λ Subscribed accounts and unused social media accounts which are no longer in use should be unsubscribed or deleted.
λ Ensure the content posted protect your privacy.

(c) What is password Policy? Write any two important criteria for creating strong password.

A set of rules designed to enhance computer security by encouraging user to employee strong passwords and use them properly is called password policy.

Any two important criteria for creating strong password are

λ Don't use easily guessable the name of a pet, child, family member, birthdays, birthplace, name of a favourite holiday.

λ Mix characters, numbers and symbols. Also, mix small and capital letters.

(d) What is e-commerce? Write any two advantages of e-commerce.

E-Commerce refers to electronic transactions such as buying, selling and exchanging of goods, services and information over computer communication network such as the Internet.

Advantages of E-commerce

*   Faster buying/selling procedure, as well as easy to find products.
*   There are no geographical limitations, can deliver service globally.

(e) What is loT? Write any two advantages of it.

IoT is a system of interrelated computing device to exchange information over a network without human-to-human or human to computer interaction.

Advantages of Internet of Things (IoT)

*   It enables convenient control of home appliances.
*   Information is easily accessible from any place at any time on any device.

(f) What is DBMS? Write any two examples.

DBMS is a computerized system that stores data, processes them and provides information in an organized form. E.g. MS-Access, Oracle, MySQL, Fox Pro etc

(g) What is MS Access? Write any two advantages of it.

MS-Access is a relational database management system developed by Microsoft Corporation which is used to store and manipulates large volume of data in multiple tables.

> **Any two advantages of Ms-Access are:**
> a) It provides the flexible ways to add, edit, delete and display the related data.
> b) Queries help to view, change and analyse the data indifferent ways.

(h) What is query? Write its type.

Query is an object of database that is used to view, retrieve, change and analyze records from a table or multiple linked tables based on specified condition.

Its types are:

Select query is a type of query which is used to select and display the relevant data from the database.

Action query is a query that makes changes to or removes many records in just one operation. Types of action query are Update, Delete, Append and Make Table query.

(i) What is data type? Write some data types of ms-access.

Data type is an attribute for a field that determines the type of data that can be stored in that field.

Some data types of ms-access are: Text, Memo, Number, Currency etc.

2 k. Write the output of the following program.
DECLARE SUB seri()
CLS
CALL seri
END
SUB seri
a$="KATHMANDU"
b=LEN(a$)
FOR I=1 TO 5
PRINT TAB(I); MID$(a$, i, b)
b=b-2
NEXT I
END SUB

a$	b=LEN(a$)	I=1 TO 5	PRINT TAB(I); MIDS(a$, i, b)	b=b-2
KATHMANDU	9	1 TO 5 yes	KATHMANDU	9-2=7
		2 TO 5 yes	ATHMAND	7-2=5
		3 TO 5 yes	THMAN	5-2=3
		4 TO 5 yes	HMA	3-2=1
		5 TO 5 yes	M	2-1=1
		6 TO 5 No		

The output of the program is:
KATHMANDU
  ATHMAND
    THMAN
      HMA
        M

J. Rewrite the following program after correcting it.
Rem To print only class 10 record from "student.dat"
CLS
OPEN "T", #2, "Student.Dat"
WHILE NOT EOF (#2)
WRITE#2, N$, C,R
IF C = 10 THEN
DISPLAY N$, C, R
END IF
NEXT
CLOSE #2
END
Debugged Program
Rem To print only class 10 record from "student.dat"
CLS
OPEN "T", #2, "Student.Dat"
WHILE NOT EOF **(2)**
INPUT#2, N$, C,R
IF C = 10 THEN
PRINT N$, C, R
END IF
WEND
CLOSE #2
END

(1) Read the following program and answer the questions given below.
DECLARE FUNCTION TEST (X)
CLS
Y = 100
Z = TEST (Y)
PRINT Z
END
FUNCTION TEST (A)
FOR I = 1 TO A
S=S+I
NEXT I
TEST = S
END FUNCTION

(a) List the different parameter used in the above program with their types.
  Formal Parameters are A and X
  Actual parameter is Y
(b) List the different operators used in the above program with their types.
  Arithmetic operator is +
  Relational operator is =

5. Convert/Calculate as per the instruction:
 (a) $(110111)_2$ into (Decimal)
$= (1 \times 2^5) + (1 \times 2^4) + (0 \times 2^3) + (1 \times 2^2) + (1 \times 2^1) + (1 \times 2^0)$
$= 1 \times 32 + 1 \times 16 + 0 \times 8 + 1 \times 4 + 1 \times 2 + 1 \times 1$
$= 32+16+0+4+2+1$
$= (55)_{10}$
$(110111)_2 = (55)_{10}$
b) $(25AF)_{16}$ into (Binary)
Convert each hex digit to 4 binary digits (see conversion table below):
25AF
= 2 5 A F
=
= 0010010110101111

Hexadecimal digit	2	5	A	F
Binary Equivalent value	**0010**	**0101**	**1010**	**1111**

$(25AF)_{16}$ into (001001011010111)

(c) 11110+10011
 11110
+10011
0110001
11110 + 10011 = 0110001

(d) 1110÷110
110) 1110 (10
  -110
   10
   -0
   10
Quotient – 10
Remainder = 10

Group C (16 Marks)

6 . (a) Write a program in QBASIC that asks length,breadth and height of a room and calculates its area and volume. Create a user-defined function to calculate area and sub-program to calculate volume. [Hints: Area = LxB, Volume = L x B x H)

```
DECLARE FUNCTION AREA(L,B)
DECLARE SUB VOL(L,B,H)
CLS
INPUT "Enter Length"; L
INPUT "Enter Breadth"; B
INPUT "Enter Height"; H
PRINT "Area of room="; AREA(L,B)
CALL VOL(L,B,H)
END
 FUNCTION AREA(L,B)
AREA = L * B
END FUNCTION
 SUB VOL(L,B,H)
V=L*B*H
PRINT "Volume of Room="; V
END SUB
```

(b) Write a program to update the rate by increasing 10% from a sequential data file "Data.dat" that store item name, rate and quantity.

```
OPEN "DATA.DAT" FOR INPUT AS#1
OPEN "TEMP.DAT" FOR OUTPUT AS #2
CLS
WHILE NOT EOF (1)
        INPUT #1, N$, R, Q
        R1 = R + 10/100 * R
        WRITE #2, N$, R1, Q
WEND
CLOSE #1, #2
KILL "DATA.DAT"
NAME "TEMP.DAT" AS "DATA.DAT"
END
```

Write a program in C language to ask to enter base and height of a triangle then calculate its area.

```
#include<stdio.h>
#include<conio.h>
int main()
{
int b,h;
float a;
printf("Enter base: ");
scanf("%d", &b);
printf("Enter height: ");
scanf("%d", &h);
a=(b*h)/2;
printf("Area of triangle= %.2f", a);
return 0;
}
```

```
#include <stdio.h>
int main()
{
   int  j, sum = 0;
   printf("The first 10 natural number is :\n");
    for (j = 1; j <= 10; j++)
   {
      sum = sum + j;
      printf("%d ",j);
   }
   printf("\nThe Sum is : %d\n", sum);
}
```

Write a C program to find the sum of first 10 natural numbers.

12. SEDIPS BOARD EXAMINATION 2079

Group-A
(Very Short Questions-10 Marks)

1) Answer the following questions:

a) Define Bandwidth.
Ans: The amount of data that can be carried from one point to another in a given time period is called bandwidth.

b) What is digital citizenship?
Ans: Digital citizenship refers to the responsible and ethical use of technology and the internet which involves understanding, practicing, and promoting appropriate behavior when using digital tools and resources.

c) Name any two modes of Electronic Payments.
Ans: Any two modes of electronic payments are:
a) Credit Card
b) Debit Card

d) Define relationship.
Ans: A relationship refers to the association or connection between two tables based on a common field or fields.

e) What do you mean by modular programming?
Ans: Modular programming is a technique used to divide our program into many small logical, manageable and functional modules or blocks.

f) Write any two data types used in C language.
Ans: Any two data types used in C language are:
i) int
ii) char

2) Give the appropriate technical terms of the following:
a) Hacking done with permission from the client. <u>Ethical Hacking</u>
b) The process of identifying an individual usually based on a username and password. <u>Authentication</u>

3) Write the full forms for the following:
SMTP- Simple Mail Transfer Protocol
VRML- Virtual Reality Modeling Language

Group-B
(Short Questions-24 Marks)

4) Answer the following questions:
a) Define data communication. Write its components.
Ans: Data communication is the process of transferring data and information between computers and other electronic devices.
Its components are:
Data (message) : Data is to be communicated between sender and receiver.
Sender : Sender is a device used to transfer data.
Medium: Medium is a channel through which sender and receiver make communication.
Receiver: Receiver is a device used to receive data.
Protocol: Protocol is a set of rules followed by sender and receiver.

b) Write any two Opportunities and Threats in Social Media.
Opportunities of using social media
1. Social media let us share anything with others around the world.
2. It keeps us informed about the world.

Threats of using social media
1. Personal data and privacy can be easily hacked and shared on the internet.
2. Spreading false or unreliable information.

c) What is software security? List any two security mechanism of Computer Hardware Security.
Software security is the protection of computer systems and applications from threats, such as hacking, virus attacks, and unauthorized access, to ensure their confidentiality, integrity, and availability.
Any two security mechanism of Computer Hardware Security are:
i) Insurance
ii) Regular maintenance

d) Define M-commerce. Write any four examples of M-Commerce.
Ans: M-Commerce refers to the process of buying and selling of goods and services through wireless handheld devices such as smartphones, tablets or personal digital assistants (PDAs).
Any four examples of M-Commerce are:
Purchasing airlines / movie tickets, Restaurant / Hotel booking and reservation, Fund Transfer, Top – Up Charges Fund Transfer etc.

e) What do you mean by Iot? List its any two advantages.
Ans: IoT is a system of interrelated computing device to exchange information over a network without human-to-human or human to computer interaction.
Its two advantages are:
- Information is easily accessible from any place at any time on any device.
- It enables convenient control of home appliances.

f) What is DBMS. Write any two advantages of DBMS.
Ans: DBMS is a computerized system that stores data, processes them and provides information in an organized form.
Any two advantages of DBMS are:
a) It reduces data redundancy which means duplication of data.
b) It allows multiple users to access the same data simultaneously.

g) Define the term Validation Rule and Validation Text.
Ans: Validation Rule is a field property which is used to limit the values that can be entered into a field.
Validation Text is a field property which displays an error message that appears if the data entered is invalid according to the specified validation rule.

h) Differentiate between select query and update query.

Select Query	Update Query
- **Select query** is a type of query which is used to select and display the relevant data from the database.. - The Select query is used to select data from a database.	- **An update query** is a type of query that makes entire changes to a record or group of records in one or more tables - The Update query is used to update existing records in a table.

i)Define Data types. List any four names of the data types.
Ans: Data type is an attribute for a field that determines the type of data that can be stored in that field.
Any four names of data types are:
i) Text
ii) Number
iii) Memo   iv) Currency

FIND OUTPUT ALONG WITH DRY RUN

```
DECLARE SUB SERIES ( )
CLS
CALL SERIES
END
SUB SERIES
A$="NEPAL"
B=1
FOR I=1 TO LEN(A$) STEP 2
IF B < > 3 THEN
PRINT MID$(A$,B,I)
ELSE
PRINT MID$(A$,1,I)
END IF
B=B+1
NEXT I
END SUB
```

DRY RUN

A$	B	1 TO 5 STEP 2	B< > 3	YES -PRINT MID$(A$,B,I)	No- PRINT MID$(A$,1,I)	B=B+1
NEPAL	1	1 TO 5 YES	1 < > 3 YES	N		1+1=2
	2	3 TO 5 YES	2 < > 3 YES	EPA		2+1=3
	3	5 TO 5 YES	3 < > 3 NO		NEPAL	3+1=4
	4	7 TO 5 NO LOOP EXITS				

OUTPUT
N
EPA
NEPAL

Debug

```
DECLARE FUNCTION vowel(S$)
w$=we love our country
v=vowel(w$)
PRINT "The total no. of vowel::"; v
END
FUNCTION vowel$(S$)
c=0
FOR K=1 TO length(S$)
B$=MID$(S$, K, 1)
B$=LCASE$(B$)
SELECT CASE B$
CASE "a", "e", "i", "o", "u"
c=c+1
END SELECT
NEXT K
C=vowel
END FUNCTION
```

Debugged Program

```
DECLARE FUNCTION vowel(S$)
w$="we love our country"
v=vowel(w$)
PRINT "The total no. of vowel::"; v
END
FUNCTION vowel(S$)
c=0
FOR K=1 TO LEN(S$)
B$=MID$(S$, K, 1)
B$=LCASE$(B$)
SELECT CASE B$
CASE "a", "e", "i", "o", "u"
c=c+1
END SELECT
NEXT K
vowel = c
END FUNCTION
```

Analytical Questions

```
OPEN "MARKINFO.TXT" FOR INPUT AS #1
OPEN "TEMP.TXT" FOR OUTPUT AS #2
CLS
DO UNTIL EOF(1)
INPUT #1, REGISTRATIONNUMBER, STUDENTNAME$, ENGLISH, NEPALI, MATHEMATICS
IF MATHEMATICS<20 THEN
MATHEMATICS=MATHEMATICS+10
END IF
WRITE #2, REGISTRATIONNUMBER, STUDENTNAME$, ENGLISH, NEPALI, MATHEMATICS
LOOP
CLOSE#1
CLOSE #2
KILL "MARKINFO.TXT"
NAME "TEMP.TXT" AS "MARKINFO.TXT"
END
```

a) **What is the main objective of the program given above?**
The main objective of the program given above is to increase marks of math by 10 whose marks in math is less than 20.

b) **Do you get any problem in above program if "Kill" statement is removed? Give reason.**
Yes, there will be a problem in the above program if the "KILL" statement is removed. If the "KILL" statement is removed, the program will not be able to delete the existing "MARKINFO.TXT" file.
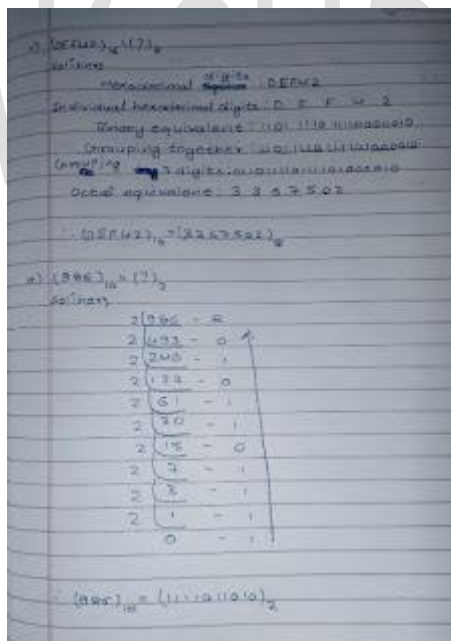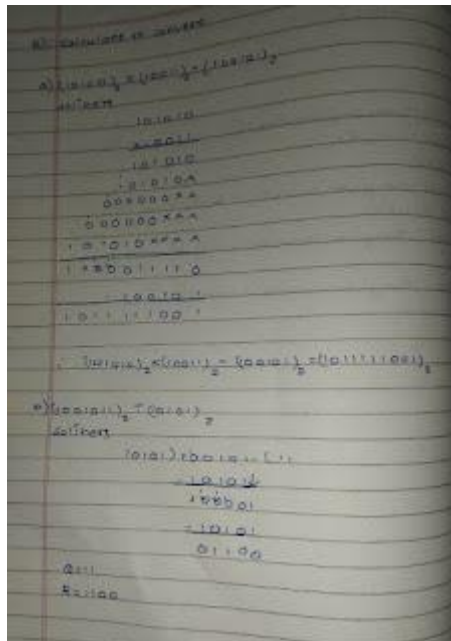
8) Calculate/Convert as per the instructions:

a) $(101010)_2 \times (101011)_2 - (100101)_2$

b) $(1001011)_2 \div (10101)_2$

c) $(DEF42)_{16} = (?)_8$

c) $(986)_{10} = (?)_2$

9. a) Write a QBASIC program that asks length, breadth, height and calculate Volume of Cuboid and Total Surface Area. Create a USER DEFINED FINCTION to calculate Volume of Cuboid and SUB-PROGRAM to calculate Total Suface of Area.

```
DECLARE FUNCTION VOL(L,B,H)
DECLARE SUB TSA(L,B,H)
CLS
INPUT"Enter length";L
INPUT"Enter breadth";B
INPUT"Enter height";H
PRINT"Volume of cuboid= ";VOL(L,B,H)
CALL TSA(L,B,H)
END
 FUNCTION  VOL(L,B,H)
VOL=L*B*H
END FUNCTION
SUB TSA(L,B,H)
T=2*(L*B+B*H+L*H)
PRINT"Total surface area of cuboid=";T
END SUB
```

b) A sequential data file"records.dat" contains S.NO., Name, Address, Telephone No and Email Address. WAP to count and display those records whose email address ends in "yahoo.com" domain. Your display should be in tabular format having the fields Name, Address and Email address only.

```
OPEN "records.dat" FOR INPUT AS #1
CLS
WHILE NOT EOF(1)
INPUT #1, SN, N$, A$, T, E$
IF LCASE$(RIGHT$(E$,9))="yahoo.com"
THEN PRINT N$,A$,E$
C=C+1
END IF
WEND
PRINT "TOTAL NO. OF HAVING YAHOO EMAIL ADDRESS ARE"; C
CLOSE #1
END
```

10. Write a program in C language that asks a number check whether number is Positive, Negative or zero.

```c
#include<stdio.h>
int main()
{
   int n;
   printf("Enter any number: ");
   scanf("%d",&n);
   if(n>0)
   printf("The given number is positive");
   else if(n<0)
   printf("The given number is negative");
   else
   printf("The given number is zero");
   return 0;
}
```

```c
#include<stdio.h>
int main()
{
   int n=7,i,s=0;
   for(i=1;i<=10;i++)
   {
      printf("%d  ",n);
      s=s+n;
      n=n+3;
   }
   printf("\nsum= %d",s);
   return 0;
}
```

 OR

Write a program in C language to display the series with their sum 7, 10, 13, 16…… upto 10th term.

12. NPABSON BOARD EXAMINATION 2079

(a) Define Computer security.
Computer security refers to protecting computer and its content from damage, theft or misuse and action to prevent such incidents

(b) What is e-commerce?
E-Commerce refers to electronic transactions such as buying, selling and exchanging of goods, services and information over computer communication network such as the Internet.

(c) Define Keyword with example.
Keyword is a set of special words which are already defined for some tasks.
E.g. auto, double, int, long etc

(d) Why C is called a middle level language?
C is called middle level language because it combines elements of high level language with some features of assembler

(e) Which data type is used to store your school fee in MS-Access?
Currency is the data type used to store school fee in MS-Access.

(f) Define Form.
Form is one of the MS-Access database objects which provides graphical interface to view, modify and add data in a table or multiple linked tables.

2. Write appropriate technical term.

(a) Arrangements of nodes in a Network. Topology

(b) A concept of transferring data from your computer to server Computer. Uploading

3. Write the full form.

(a) SMTP – Simple Mail Transfer Protocol
(b) SIM – Subscriber Identification Module
(a) Define Network Architecture. List out its types.
Network architecture defines how the computer communicates and interacts with each other on network.
Its types are:
1. Peer to Peer Network
2. Client-Server Network
3. Centralized Network
(b) Write any two measures to protect hardware and explain.
Any two measures to protect hardware are:
Regular Maintenance
Computer system need regular maintenance to keep the computer hardware in good working condition and it also helps to find out problems in hardware and correct the problems before they cause several damages.
Power Protection Device
An electric device that controls electric voltage and provides enough backup to the computer system when there is power failure. Computer needs 220 volts to 240 volts constantly. Some common power protection devices are:
    a) UPS   b) Volt Guard   c) CVT (Constant Voltage Transformer) etc.

(c) Write down the advantages of internet.

The advantages of internet are:

a) Internet has an endless knowledge supply which anyone can access that too free of cost.
b) Selling and buying has become so easy with the use of internet and it has helped millions to sell and buy their goods online.
c) Internet has given us E-Mail which is fast, secure and reliable mode of communication.
d) It makes easy to transfer the file or information.

(d) "Al is for the aid of people not their against. Explain.

AI is an emerging branch in computer science, which interprets the means and method of making computers think like human beings. AI is for the aid of people not their against. AI reduces labor and operational costs by automating tasks. AI processes and analyzes data faster than humans, leading to quicker decision-making. AI can automate repetitive tasks, saving time and reducing errors. AI systems can work continuously (24/7) without rest

(e) What is cyber-crime? Explain any one of them

Cyber crime refers to criminal activities that are carried out using computers, networks and the internet. Phishing is the fake attempt to obtain sensitive information such as usernames, passwords and credit card details by disguising oneself as a trustworthy entity in an electronic communication

(f) Define database. Given some examples of RDBMS software.

A collection of systematically organized inter-related data is called a database. The purpose of data base is to store, organize and retrieve data. some examples of RDBMS software : MySQL, Oracle, MS Access, MariaDB

(g) What is query? List out its types.

Query is an object of database that is used to view, retrieve, change and analyze records from a table or multiple linked tables based on specified condition.

Its types are:

Select query is a type of query which is used to select and display the relevant data from the database.

Action query is a query that makes changes to or removes many records in just one operation. Types of action query are Update, Delete, Append and Make Table query

(h) List out the objects of MS-Access. Explain about table.

The objects of MS-Access are table, form, query and report.

Tables are the primary building block of database which stores and manages large volume of data into rows and column. Tables are essential for creating forms, queries, and reports that extract useful insights and information from data. Tables provide security features to restrict access to sensitive data and ensure data privacy

(1) What is report? Write down its important.

Report is one of the MS-Access database objects used to present information in an effective and organized format that is ready for printing.

Its important is to present data from one or more tables in a formatted and organized manner, allowing users to easily view and analyze the information

5. Write down the output of given program.

```
DECLARE FUNCTION ABC$(X$)
CLS
INPUT "Enter a string"; A$
PRINT ABC$("COMPUTER")
END

FUNCTION ABC$(X$)
C=4
FOR i=1 to 1
BS=MID$(X$,4,3)
NEXT I
ABC$=B$
END FUNCTION
```

Dry Run

A$	C	i=1 to 1	BS=MID$(A$,4,3)	ABC$=B$	PRINT ABC$("COMPUTER")
COMPUTER	4	1 to 1 yes	MID$(X$,4,3)= PUT	PUT	PUT
		2 to 1 No Loop Exits			

The output of the program is:
PUT

6. Re-write the program after correcting the bug.

```
DECLARE SUB sbn()
CLS
CALL SUB sbn (14)
END SUB

SUB sbn()
INPUT "enter the variable value"; var
PRINT "Square of given number"; var^2
END
```

Debugged Program

```
DECLARE SUB sbn( )
CLS
CALL sbn
END

SUB sbn( )
INPUT "enter the variable value"; var
PRINT "Square of given number"; var^2
END SUB
```

7. Study the following program and answer the given questions.

```
OPEN "student.txt" FOR OUTPUT AS #1
OPEN "Tem.txt" FOR INPUT AS #2
WHILE NOT EOF (2)
INPUT #2, reg, Name$, Add$
IF reg>10 AND reg <20 then
WRITE #1, reg, Name$, Add$
END IF
WEND
CLOSE #1, #2
END
```

(a) Write down the mode used in above program
Ans: The mode used in above program are INPUT and OUTPUT mode.

(b) Write the name of String variable used in file based on above program.
Te name of String variable used in file based on above program are :
Name$, Add$

Group C
8. Convert/Calculate as per instruction.
(a) (2079)10 into binary

2	2079	Remainder
2	1039	1
2	519	1
2	259	1
2	129	1
2	64	1
2	32	0
2	16	0
2	8	0
2	4	0
2	2	0
	1	0
	0	1

(2079)10 = (100000011111)2

(b) (CAD)16 into Octal
Converting Hexadecimal to Binary
C = 1100
A = 1010
D = 1101
=(110010101101)2

Again, Converting Binary to Octal
110 = 6
010 = 2
101 = 5
101 = 5
(CAD)16 into (6255)8

(c) (11001110)+(110011)

```
    11001110
  +  110011
  100000001
```

(11001110)+(110011) = (100000001)

(d) (101001)÷(101)

```
101 )  101001 ( 1000
        -101
         000001
       -       0
               1
```

Quotient – 1000
Remainder - 1

9. Write a program to find area of four walls using FUNCTION... END perimeter of rectangle using SUB...END SUB.

```
DECLARE FUNCTION AREA (L,B, H)
DECLARE SUB PER(L,B)
CLS
INPUT "Enter Length"; L
INPUT "Enter Breadth"; B
INPUT "Enter Height"; H
PRINT "Area of four walls="; AREA(L,B, H)
CALL PER(L,B)
END

FUNCTION AREA(L,B)
AREA = 2*H*(L+B)
END FUNCTION

SUB PER(L,B)
P=2*(L+B)
PRINT "Perimeter of rectangle="; P
END SUB
```

10. Write a program to read the data from the file "empinfo.txt" and display their NAME, EMPID, POST whose POST is Clerk.

```
OPEN "empinfo.txt" FOR INPUT AS #1
CLS
WHILE NOT EOF (1)
 INPUT #1, N$, E, P$
   IF UCASE$(P$) = "CLERK" THEN PRINT N$, E, P$
WEND
CLOSE #1
END
```

11. Write a program to read a number and test whether it is positive and negative using C-programming.

```c
#include<stdio.h>
#include<conio.h>
int main()
{
int n;
printf("Enter any number: ");
scanf("%d", &n);
if(n>0)
printf("%d is positive number",n);
else if(n<0)
printf("%d is negative number",n);
return 0;
}
```

***