Computer Engineering Department, S V N I T, Surat.
Supplementary Examinations, February 2019
B Tech I (All Branches)
Subject: CO100 (Fundamentals of Computer and Programming)

Max Marks: 50

Instructions:
1. Write your B Tech Admission No/Roll No and other details clearly on the answer books while write your BTech Admission No on the question paper, too.
2. Assume any necessary data but give proper justifications.
3. Be precise and clear in answering the questions.

Q1. Answer the following. (write a procedure) (6)

1) **a)** Convert $(6B.C1)_{16}$ to $(\ )_8$ **b)** $(A1E8)_{16} + (1B0F)_{16} = (?)_{16}$ (2)
2) **a)** $(36.2)_8 - (64.4)_8 = (?)_8$ **b)** $(100011100.11)_2 = (?)_8$ (2)
3) Perform $(25)_{10}$-$(32)_{10}$ using 2's complement. (2)

Q2. Answer the following.(Any Six) (18)

1) Draw the flowchart for checking a year for leap year.
2) What is a use of register? Give the list of registers with their functions.
3) Differentiate between 3rd generation and 4th generation of a computer.
4) Explain Multi processor systems in brief.
5) List the different types of ROM? Explain the type of ROM that is used to make the BIOS.
6) What are the advantages and disadvantages of SRAM over DRAM?
7) Explain the storage organization of a magnetic disk.

Q3. Write a C program for following: (12)

1) To print the first N Fibonacci numbers using recursive function.
2) To find occurrence of each vowel in the given string using function.
3) To convert years into months, days, hours, minutes using switch statement.
4) To find maximum number between two numbers without using if statement.

Q4. Answer the following: (6)

1)Which are various types of user-defined function? Explain any one with example.
2)List out all the storage classes and explain any two.

Q5. Write a C program to print following pattern: (4)

```
5678
678
78
8
```

OR

```
    1
  2 2
3 3 3
4 4 4 4
```

Q6. Write the output for the following: (4)

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

2.
```
#include<stdio.h>
int main()
{
    int x=12, y=7, z;
    z = x!=4 || y == 2;
    printf("z = %d\n", z);
    return 0;
}
```

3.
```
#include<stdio.h>
main()
{
    int i;
    for(i = 3; i<15; i+= 3)
    printf("%d", i);
}
```

4.
```
#include<stdio.h>
main()
{
    int n = 0, m = 1;
    do
    {
        printf("%d", m);
        m++;
    } while(m <= n);
}
```

Department of Computer Science and Engineering, SVNIT, Surat.
Supplementary Exam, April/May 2022
B. Tech., MSc - I (All Branches)
Course: CS 109 S1- Fundamentals of Computer and Programming

Dated: 05th May 2022 **Time: 08:30 to 11:30 a.m.** **Max Marks: 50**

Instructions:
1. Write your B. Tech. Admission No/Roll No and other details clearly on the answer books and write your B. Tech. Admission No on the question paper, too.
2. Assume any necessary data but give proper justifications.
3. Be precise and clear in answering the questions.

Q.1 Answer the following [Any Five]: [15]

1) Explain different types of software. And explain any one of them.
2) List the memory type which keeps the data even after the power lost. And explain its types.
3) Define multiprocessor systems. Explain two popular architectural approaches to build multiprocessor systems.
4) Enlist various network topologies and explain any two in detail.
5) Explain the functions of central processing unit.
6) Explain the differences between compiler and interpreter. Give examples of languages for both.

Q.2 Draw a flowchart to display the table of even number n, where n is entered by user. [03]

Q.3 Solve the following [Any Four]: [08]

1) $(432267.0625)_{10} = (?)_{16}$
2) $(7E2CA)_{16} + (1F65)_{16} = (?)_2$
3) $(2876)_8 - (1425)_8 = (?)_8$
4) $(110011)_2 + (10010)_2 - (1100)_2 = (?)_{10}$
5) $(1010.011)_2 = (?)_{10}$

Q.4 Answer the following :

1) Explain the data types for the number in C with example. [02]
2) List various control statements in C. Explain any one with example. [03]
3) Differentiate between call by value and call by reference using suitable example. [03]

Q.5 Write C programs for the following [Any Two]: [08]

1) A program to find the smallest digit of a given number (for example, largest digit in number 2816 is 1).
2) A program to convert a given string in upper case without using string library function.
3) Print following pattern using loop **[Any One]:**

```
1
2 3
4 5 6
7 8 9 0
1 2 3 4 5
```

```
5
4 4
3 3 3
2 2 2 2
1 1 1 1 1
```

Q.6 Find the output:

1)
```
#include<stdio.h>
int main()
{
int a=45, b=10;
float x, y;
x=a/b;
y=(float)a/b;
printf("%f
%f",x,y);
}
```

2)
```
#include<stdio.h>
int main()
{
 int a = 4, *b, c;
 b = &a;
 printf("%d", a * *b * a - *b);
 return 0;
}
```

3)
```
#include<stdio.h>
int main()
{
int x=27, y=-100;
x +=10;
y = +20;
printf("%d %d", x, y);
}
```

4)
```
#include<stdio.h>
int main()
{
  int a = 0;
  while (a > 5) {
  printf("%d\n", a++);
  }
printf("%d", a);
return 0;
}
```

S. V. National Institute of Technology, Surat
B.Tech-I Supplementary Examinations July-2019
Sub: Fundamentals of Computers & Programming(CO100)

Maximum Marks : 50

Date: 13th July, 2019

Time: 10:00 to 13:00

Q1 **Answer the following (Show necessary steps):** 08

1. Calculate the 10's and 9's complement of $(6217)_{10}$
2. $(5C7)_{16} - (2574)_8 = (?)_2 = (?)_{10}$
3. $(21X)_7 + (1Y5)_7 = (362)_7$ then X=?, Y=?
4. Calculate $(48)_{10}$-$(21)_{10}$ using 2's complement method.

Q2 **Answer the following (Any Seven):** 14

1. What are registers? Name five registers with their functions.
2. Enlist and explain storage evaluation criteria for different types of memory.
3. Differentiate between Machine Language and Assembly Language.
4. Differentiate between multitasking and multiprocessor operating systems.
5. Differentiate between Compiler and interpreter. Give examples of programming language for both.
6. Explain in detail: Program translation hierarchy.
7. Explain in brief the following terms: BCD, ASCII, and EBCDIC.
8. Explain in brief: Types of computer software.

Q3 Draw a flowchart to find all the roots of a quadratic equation. 03

Q4 **Answer the following (Any Five):** 25

1. List out all the operators used in "c" and explain mathematical and logical operators.
2. Explain **switch** statement with example.
3. Write a Program to print the following pattern

```
1
22
333
4444
55555
```

4. How does a structure differ from an array? Give a difference between structure and union.
5. Explain **else if** ladder with example.
6. What will be the output of the following C code?

```
main( )
{
int x = 100, y = 200;
printf("%d", (x > y) ? x : y);
}
```

Computer Engineering Department, S V N I T, Surat.
Lab Examinations, Feb 2019
B Tech I (All Branches)
Subject: CO100 (Fundamentals of Computer and Programming)

Max Marks: 25

1. Answer the following MCQ based Questions: (20)

```
#include<stdio.h>
main()
{
 char *s = "Abc";
 while(*s)
  printf("%c", *s++);
}
```

(A) – Abc (B) - bc (C) - Compile error (D) - Runtime error

2. Which of the following shows the correct hierarchy of arithmetic operations in C
(A) / + * - (B) * - / + (C) + - / * (D) * / + -

3. The following code 'for(;;)' represents an infinite loop. It can be terminated by.
(A) break (B) exit(0) (C) abort() (D) All of the mentioned

4. The correct syntax for running two variable for loop simultaneously is.
(A) for (i = 0; i < n; i++)
for (j = 0; j < n; j += 5)
(B) for (i = 0, j = 0;i < n, j < n; i++, j += 5)
(C) for (i = 0; i < n;i++){}
for (j = 0; j < n;j += 5){}
(D)None of the mentioned

5. Which standard library function can return a pointer to the last occurrence of a character in a string?
(A) - stchar() (B) - strrchr() (C) - strchar() & stchar() (D) - strrchar()

6.
```
#include <stdio.h>
int main()
{
int x = 97;
switch (x)
{
case 'a':
printf("yes ");
break;
case 97:
printf("no\n");
break;
}
}
```

(A) yes (B) yes no (C) Duplicate case value error (D) Character case value error

7.
```
#include <stdio.h>
void main()
 {
   double k = 0;
   for (k = 0.0; k < 3.0; k++)
     printf("Hello");
 }
```

(A) Run time error (B) Hello is printed thrice (C) Hello is printed twice (D) Hello is printed infinitely

8.
```
#include <stdio.h>
void m()
{
  printf("hi");
}
void main()
{
```

Computer Engineering Department, S V N I T, Surat. J-30

Supplementary Examinations, February 2019

B Tech I (All Branches)

Subject: CO100 (Fundamentals of Computer and Programming)

Max Marks: 50

Instructions:

1. Write your B Tech Admission No/Roll No and other details clearly on the answer books while write your BTech Admission No on the question paper, too.
2. Assume any necessary data but give proper justifications.
3. Be precise and clear in answering the questions.

Q1.	**Answer the following. (write a procedure)** 1) **a)** Convert $(6B.C1)_{16}$ to $(\ )_8$ **b)** $(A1E8)_{16} + (1B0F)_{16} = (?)_{16}$ 2) **a)** $(36.2)_8 - (64.4)_8 = (?)_8$ **b)** $(100011100.11)_2 = (?)_8$ 3) Perform $(25)_{10}$-$(32)_{10}$ using 2's complement.	(6)
Q2.	**Answer the following.**(Any Six) 1) Draw the flowchart for checking a year for leap year. 2) What is a use of register? Give the list of registers with their functions. 3) Differentiate between 3rd generation and 4th generation of a computer. 4) Explain Multi processor systems in brief. 5) List the different types of ROM? Explain the type of ROM that is used to make the BIOS. 6) What are the advantages and disadvantages of SRAM over DRAM? 7) Explain the storage organization of a magnetic disk.	(2) (2) (2) (18)
Q3.	**Write a C program for following:** 1) To print the first N Fibonacci numbers using recursive function. 2) To find occurrence of each vowel in the given string using function. 3) To convert years into months, days, hours, minutes using switch statement. 4) To find maximum number between two numbers without using if statement.	(12)
Q4.	**Answer the following:** 1)Which are various types of user-defined function? Explain any one with example. 2)List out all the storage classes and explain any two.	(6)
Q5.	**Write a C program to print following pattern:** 5678 678 78 8 **OR** 1 2 2 3 3 3 4 4 4 4	(4)
Q6.	**Write the output for the following:**	

1.

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

2.

```
#include<stdio.h>
int main()
{
    int x=12, y=7, z;
    z = x!=4 || y == 2;
    printf("z = %d\n", z);
    return 0;
}
```

3.

```
#include<stdio.h>
main()
{
    int i;
    for(i = 3; i<15; i+= 3)
    printf("%d", i);
}
```

4.

```
#include<stdio.h>
main()
{
    int n = 0, m = 1;
    do
    {
        printf("%d", m);
        m++;
    } while(m <= n);
}
```

9.
```
#include <stdio.h>
int main()
{
  int i = 0;
  do {
    i++;
    printf("in while loop\n");
  } while (i < 3);
}
```
(A) 2 (B) 3 (C) 4 (D) 1

10. What is storage class for variable A in below code?
```
void main()
{
int A;
A = 10;
printf("%d", A);
}
```
(A) extern (B) auto (C) register (D) static

11. What is output of below program?
```
void main()
{
const int a = 10;
printf("%d",++a);
}
```
(A) 11 (B) 10 (C) Compilation Error (D) 0

12. What is output of below program?
```
void main()
{
for(; ;)
for(; ;)
  printf("Hello..");
}
```
(A) Compilation Error (B) Runtime Error (C) Hello is printed one time (D) Hello is printed infinite times

13.
```
#include<stdio.h>
int main()
{
 int a;
 char *x;
 x = (char *) &a;
 a = 512;
 x[0] = 1;
 x[1] = 2;
 printf("%dn",a);
 return 0;
}
```
(A)Machine dependent (B)513 (C)258 (D)Compiler Error

14. What does the following fragment of C-program print?
```
char c[] = "GATE2011";
char *p =c;
printf("%s", p + p[3] - p[1]) ;
```
(A)GATE2011 (B)E2011 (C)2011 (D)011

15.
```
#include<stdio.h>
main()
{
 struct student
 {
   int num = 10;
 }var;
 printf("%d", var.num);
}
```
(A) 10 (B) Garbage (C) Runtime error (D) Compile error

End-Semester Examinations, April-May 2019 ...partment, S V N I T, Surat.
B Tech-I (Div. A to E) – 2nd Semester
Course: COM208ABC (Fundamentals of Computers & Programming)

...May, 2019 Time: 9:30am to 12:30pm Max Marks: 50

...tions:
...rite your B. Tech. Admission No/Roll No and other details clearly on the answer books and write your B. Tech. Admission No ... the question paper, too.
...sume and write necessary data with proper justifications, if any.
... precise and clear in answering the questions.
...pport your answer with necessary diagrams and examples, if any.

Answer the following [Any Five]: [15]

a) Explain in brief: Program Development Lifecycle.
b) What is register? Give name of any four registers with its functionality.
c) Define Network topology. Explain Mesh topology with merits and demerits.
d) Explain processor to memory communication.
e) Enlist types of RAM and give difference between them.
f) Explain High Level Language with advantage and disadvantage.

Do as directed with appropriate steps for calculation[Any Four]: [08]

a) $(47E9)_{16} + (CB42)_{16} = (?)_{16}$
b) Perform binary addition and convert answer to hexadecimal. $(467)_8 + (AC)_{16}$
c) Perform subtraction using 2's Complement. $(65)_{10} - (72)_{10} = (?)_{10}$
d) Find 7's and 8's complement of $(010110011)_2$
e) $(749)_8 + (671)_8 = (?)_8$

Answer the following (with respect to C programming language): [15]

a) Design a C program to enter and display the employee data using nested structure.
b) Difference between structure and union.
c) What are the types of storage class in C? Explain them.
d) Explain call by reference with c program.
e) Draw a flow chart to find whether a number is palindrome or not.

a) Write a C program to find reverse of any number using recursion. [06]
b) Write the 'C' program to generate the dynamic pattern [Note: take the input n (i.e. number of lines) from user]:

```
1
2 4
1 3 5
2 4 6 8
1 3 5 7 9
```

OR

a) Write a C program to calculate the power of a number using recursion.
b) Write the 'C' program to generate the dynamic pattern [Note: take the input n (i.e. number of lines) from user]:

```
1 2 3 4 5
4 3 2 1
1 2 3
2 1
1
```

16.
```
#include <stdio.h>
int main()
{
int ary[4] = {1, 2, 3, 4};
int *p = ary + 3;
printf("%d\n", p[-2]);
}
```
(A) 1 (B) 2 (C) Compile time error (D) Some garbage value

17. In C, parameters are always,
(A) Passed by value (B) Passed by reference
(C)Non-pointer variables are passed by value and pointers are passed by reference
(D) Passed by value result

18.
```
#include <stdio.h>
int main()
{
printf("%d", main);
return 0;
}
```
(A) Address of main function (B) Compiler Error (C) Runtime Error (D) Some random value

19. Predict output of following program
```
int main()
{
  int i;
  int arr[5] = {1};
  for (i = 0; i < 5; i++)
    printf("%d ", arr[i]);
  return 0;
}
```
(A) 1 followed by four garbage values (B) 1 0 0 0 0 (C) 1 1 1 1 1 (D) 0 0 0 0 0

20. What will be the output of the program?
```
#include<stdio.h>
int main()
{
  char str[]="C-program";
  int a = 5;
  printf(a >10?"Ps\n":"%s\n", str);
  return 0;
}
```
(A) C-Program (B)Ps (C) Error (D) None of Above

Q2. Write a C Program (Any one): (5)

(1) Write a C program to check whether the given number is STRONG or not.
(Hint: 145 = 1! + 4! + 5! = 1+24+120)

(2) Write a C program to check whether the matrix is upper triangle or not.
(Hint: In upper triangle the elements in the matrix in diagonal and above the diagonal are nor-zero elements)