15366
B. Tech 8th Semester Examination
Systems Software (OS)
CS-8001

Time : 3 Hours   Max. Marks : 100

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt one question from each section A, B, C & D. Section E is compulsory. Each question carry equal marks.

SECTION - A

1. (a) Write and explain addressing modes. What is the difference between displacement and index addressing?

   (b) Write and explain the output of following C code
```
#include<stdio.h>
int i;
main()
    {
        Int j;
        f o r (;;)
        {
            if (j = function (i))
                printf ("\n = %d\n",j);
            else
                break;
        }
    }
function (x)
int x;
{
  static int v = 2 ;
  v-;
  return (v-x);
}
```
                                                        (10+10=20)

2. (a) Write and explain the output of following C code
```
#include<stdio.h>
main() {
        static int a [ ] = {0, 1, 2, 3, 4};
        static int *p[ ] = {a, a + 1, a + 2, a + 3, a + 4 };
        int**ptr = p;
        ptr++;
        printf ("%d %d %d\n", ptr - p, *ptr - a, **ptr);
        *ptr++;
        printf ("%d %d %d\n", ptr - p, *ptr - a, **ptr) ;
        printf ("%d %d %d\n", ptr - p, *ptr - a, **ptr); ++*ptr;
        printf ("%d %d %d\n", ptr - p, *ptr - a, **ptr);
}
```

   (b) What do you mean by data path? Explain the logic unit of General purpose machine.   (10+10=20)

SECTION - B

3. (a) Explain the design of one pass assembler. Draw the flow chart of one pass assembler.

   (b) Write and explain the output of following C code
```
#defineAND&&
#define OR | |
#define LE <=
#define GE >=
main()
        {
            char ch = 'D';
            if (( ch GE 65 AND ch LE 90) OR (ch GE 97 AND
            ch LE 122))
            printf ("Alphabet");
            else
                printf ("Not an alphabet");
        }
```
                                                        (10+10=20)

4. (a) What is the difference between passes and phases of compiler? Explain boot strap process with help of suitable example?

    (b) Explain hardware and software interrupt.   (10+10=20)

SECTION - C

5. (a) What do you understand by reloadable memory code? Differentiate dynamic and static linking.

    (b) Explain interactive programming environment.
                                                    (10+10=20)

6. (a) What is interrupt? Explain the types of interrupt.

    (b) Explain boot process of DOS. What are the three essential files loaded in main memory during boot process? Write their sequence of execution.
                                                    (10+10=20)

SECTION - D

7. (a) Write a program which can read binary files and print this file on standard output devise.

    (b) Write and explain init86 () function. Support your answer with suitable example.   (10+10=20)

8. (a) Explain the different modes of file handling in C.

    (b) Explain union REGS. Write a program to find the size of memory.   (10+10=20)

SECTION - E

9. Explain following:

    (a) Instruction set.

    (b) Bootstrap loader.

    (c) Instruction format.

    (d) Dynamic linking.

    (e) Absolute address.   (5×4=20)