

USN

1 m s o u c s o b b

First/Second Semester B.E Degree Examination, July/August 2005**Common to all Branches****Computer Concepts & C Programming**

Time: 3 hrs.]

[Max.Marks : 100

Note: Answer any FIVE full questions by selecting atleast ONE question from Part - A.

PART - A

1. (a) Explain with a diagram the physical and logical organisation of a computer. (7 Marks)
- (b) Differentiate between :
 - i) Primary & Secondary memory
 - ii) Impact & Non-impact printer (5 Marks)
- (c) Explain with a diagram any one of the secondary storage device. (5 Marks)
- (d) Define : High level language, assembly level language and machine level language. (3 Marks)
2. (a) What is O.S? Give the functions of an operating system. (5 Marks)
- (b) List the advantages of LAN, WAN and internet. (6 Marks)
- (c) List and give their usage of any five UNIX commands. (5 Marks)
- (d) Differentiate between interpreter and editor. (4 Marks)

PART - B

3. (a) Express the following mathematical expressions into 'C' expressions.

i)
$$\frac{x^{1/2} + x^{2/3} + x^{3/4}}{x^{5/2} + x^{7/2}}$$

ii)
$$\frac{a+b}{c+d} \cdot \frac{e}{f}$$

iii)
$$\sqrt[n]{x}$$

iv)
$$\frac{e^{\sqrt{x}} + e^{\sqrt{|y|}}}{x \sin \sqrt{y}}$$

v)
$$\sqrt{\frac{\sin 45^\circ + \cos 30^\circ}{\alpha + \beta}}$$

vi)
$$0 \leq x \leq 1$$

(6 Marks)

Contd.... 2

(b) Find the final values of the variables in the following program segment.

```
i) int a, b, c ;
    float x, y;
    a = 10;
    b = 15;
    c = b/a;
    x = b/a;
    y = (float) b/a
```

```
ii) int a, b;
     float x;
     a = 25/10 + 6.5;
     b = 25/10 + 6.6;
     x = 25/10 + 6.6;
```

(6 Marks)

(c) If the variables i, j, k hold 123, 105.658 and 0.0006 respectively find the output obtained from the following

```
Printf("\n%5d\b\b%8.2f\b\b%f", i, j, k);
```

```
Printf("\n%d\n%.1f\n%8.3f", i, j, k);
```

```
Printf("\n%2d\n%e\n%e", i, j, k);
```

```
Printf("\n%d\b\b\b%.2e\b\b\b%.4f", i, j, k);
```

(8 Marks)

4. (a) List out five rules to be followed while having a variable. Give one example for each rule with invalid case. (6 Marks)

(b) Write general hierarchy of a Paranthesis free expression involving arithmetic, relational and logical operators. (4 Marks)

(c) Some errors are there in the following program. Write the correct program.

Program to find distance and slope between two points

```
Float x1, y1, x2, y2
```

```
Scanf ("%f%f%f%f%f", x1, x1, y1, x2, y2);
```

```
Float s, d;
```

```
D = sqr(pow(x1 - x2, 2) + pow(y1 - y2, 2));
```

```
S = y1 - y2/x2 - x1;
```

```
Printf ("s = %f d = %f \ n", d, s);
```

(10 Marks)

5. (a) Explain the use of break and continue statements in a loop. Supplement your explanation with an example. (6 Marks)

(b) Compare while loop and do-while loop. Give one example for each. (6 Marks)

(c) Write a program to print all the points with integer coordinates enclosed within a circle of radius 4 units from origin. (8 Marks)

6. (a) Write an algorithm to count the occurrence of digit 5 in a given integer number. (6 Marks)

(b) What is an array ? How are they declared in 'C'? What are the rules to be followed while using arrays? (6 Marks)

- (c) a and b are two integer arrays each with n elements. Write a program to find the array c such that
 $c[i] = a[i] + b[n - 1 - i]$ (8 Marks)
7. (a) What are user defined functions [UDF]? Why UDF are required for large and complex problems? (6 Marks)
- (b) Write a program for user defined function that returns $\sum_{i=0}^{n-1} a_i b_i$ where a , and b are arrays with n elements. Use the above user defined function to calculate.

$$\frac{(x_0^2 + x_1^2 + x_2^2 + \dots + x_{n-1}^2) * (y_0^2 + y_1^2 + y_2^2 + \dots + y_{n-1}^2)}{x_0 y_0 + x_1 y_1 + x_2 y_2 + \dots + x_{n-1} y_{n-1}}$$
 (10 Marks)
- (c) List bit wise operators and give example for any two. (4 Marks)
8. (a) Define auto, global, static and register variables and give one example for each. (6 Marks)
- (b) Find the final values stored in the variables x, y, z at the end of the program.

```

Main()
{
int x,y,z,*p,*q;
x=10;
y=15;
p=&x;
q = &z;
*q= *p + y -3;
y= y - (*p);
*p=*q-z;
}

```

(6 Marks)

- (c) Write a program to count the number of space in a given string. (6 Marks)
- (d) Find the values of variable x and m after execution of the following statements
- i) $x = 15;$
 $m = x ++;$
- ii) $x = 15;$
 $m = ++ x;$

(2 Marks)