Exam Seat No:_____ Enrollment No:_____

C.U.SHAH UNIVERSITY

WADHWAN CITY

University (Winter) Examination -2013

Course Name :M.Sc(Maths) Sem-I **Subject Name: - C Programming and Mathematical Algorithm-I** **Marks :35**

Duration :- 2:00 Hours **Date : 23/12/2013**

Instructions:-

(1) Attempt all Questions of both sections in same answer book / Supplementary.
(2) Use of Programmable calculator & any other electronic instrument is prohibited.
(3) Instructions written on main answer Book are strictly to be obeyed.
(4) Draw neat diagrams & figures (If necessary) at right places.
(5) Assume suitable & Perfect data if needed.

Q-1 a) Write the values of 3/2, 125/10. (01)

b) Write the effect of the statement *printf*("%d * % o * %x",20, 20, 20); (01)

c) Write C expression for each of (i) $\sin\left(\frac{\pi x}{2}\right)$, (ii) $\frac{2}{3}e^{3x}$. (01)

d) Determine which of the following are valid identifiers. If invalid, explain why. (02)
(i) $tax (ii) name (iii) name and address (iv) file_3

e) Determine which of the following numerical values are valid constants. If a constant is valid, specify whether it is integer or real. (02)
(i) 12345 (ii) 123456789L (iii) 0.5 (iv) 27,822

Q-2 a) A C program contains the following declarations and initial assignments. (05)

```
int i = 8, j = 5;
double x = 0.005, y = – 0.01;
char c = 'c' , d = 'd';
```

Determine the value of each of the following expressions
(i) (3 * i – 2 * j) % (2 * d – c)
(ii) 2 * ((i / 5) + (4 * (j – 3))% (i + j – 2))
(iii) + + i
(iv) (i > 0) && (j < 5)
(v) (i > 0) !! (j < 5)

b) Describe the output of the following C program. (05)

```
#include <stdio.h>
main()
{
    int i = 0, x = 0;
    for(i = 1; i < 10 ; ++i) {
            if(i % 2 = = 1)
                    x + = i;
            else
                    x--;
            printf("%d    ", x);
                            }
    Printf("\nx = %d", x);
}
```

c) Determine which of the following are valid string constants. (04)
(i) '8:15 P.M.' (ii) "1.3e-12" (iii) "Name: (iv) "green"

OR

Q-2 a) A C program contains the following declarations and initial assignments. (05)

```
int i = 8, j = 5;
double x = 0.005, y = – 0.01;
char c = 'c' , d = 'd';
```

Determine the value of each of the following.

(i) abs (i - 2 * j)
(ii) fabs (x + y)
(iii)toupper (d)
(iv)sqrt (x*x + y*y)
(v) pow (x - y, 3.0)

b) Describe the output of the following C program. (05)

```
#include <stdio.h>
main()
{
    int i = 0, x = 0;
    while(i < 20) {
        if(i % 5 = = 0) {
            x += i;
            printf("%d  ", x);
            }
        ++i;
        }
    Printf("\nx = %d", x);
}
```

c) Write appropriate declarations for following group. (04)
Integer variable: p, q
Floating-point variables: x, y, z
Character variables: a, b, c

Q-3 a) Write notes on ***while*** loop and ***if*** statement. (05)

b) (i) Write a C program to find simple interest. (05)
(ii) Write a C program to sin x.

c) Write a C program to check n is prime or not. (04)

OR

Q-3 a) Write a note on ***switch*** statement. (05)

b) Write a C program to find the greatest common divisor of two given numbers. (05)

c) Write a C program to to find ! . (04)

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