

CA-004 (Programming in C)

End Semester Examination (Dec.-2006)

M.M.: 36 Time: 3 Hrs.

Note: Answer any **four out of first six** questions. **Question No. 7 is compulsory.** All programs should be written in C only. Only first five attempted questions will be evaluated.

Q1. (a) Why do we need FILES in C programming language? Write the various options available for reading, writing and appending. Also write action of each of the option.
(b) What are the various storage classes in C? Explain through example.

(4+3)

Q2. (a) Write a program for finding sum of n numbers starting from mth number.
(b) Write a program that takes set of names of individuals and abbreviates the first, middle and other names except the last name by their first letter.

(3+4)

Q3. (a) Using recursion write a program to find the hcf of four numbers.
(b) Write a program to insert an element into already sorted array.

(3+4)

Q4. (a) Using pointers, write a program to find vowels, consonants, digits and other characters in a line.
(b) Write a program to search a telephone number in a record of five telephone subscriber and print the name, telephone number, bill number and amount of the searched record.

(3+4)

Q5. (a) Write a program which should read the elements of the matrix and then write two separate functions which should check whether (i) It is a sparse matrix (ii) It is an upper triangular matrix. (A matrix is said to be sparse if number of zero elements are more than non zero elements)
(b) Given the initial values int a=5, b=10, c =15,(in each separate while loop), how many times are the following printf() s executed?

(i) while (a ++ < b --) printf("hello, world\n");	(iii) while (-- a && (-- c > b ++) printf("hello, world\n");
(ii) while (b = a --) printf("hello, world\n");	(iv) while (++b < c --) printf("hello, world\n");

(5+2)

Q6. State the output of following program/program segments

(i) main() { int x =1, y=2; switch (y) { default : x += 4; case 1: x+=1; break; case 2 : x+=2; case 3: x +=3; } printf("%d\n",x); }	(ii) main() { int x =5, y=2, z; while (x >y ++) { z =x <= ++y ? x - ++ y : y ++ - -- x; printf("x=%d, y=%d, z=%d\n", x,y,z); } do { z = ++x - y--; printf("x=%d, y=%d, z=%d\n", x,y,z); if(x = x/2) continue;} while (x >= y/2 ? 1:0); }
---	---

<pre>(iii) main() { int m=1000; function2(); printf("%d\n",m); } function1() { int m=10; printf("%d\n",m); } function2() { int m=100; function1(); printf("%d\n",m); }</pre>	<pre>(iv) int x; main() { x=10; printf("x=%d\n",x); printf("x=%d\n",fun1()); printf("x=%d\n",fun2()); printf("x=%d\n",fun3()); } fun1() { x=x+10; return x; } fun2() { int x=1; return x; } fun3() { x=x+10; return(x); }</pre>
<pre>(v) main() { int x=5, y=0; if(x>y) printf("x>y\n"); if(x<y) printf("x<y\n"); if(!(x==y)) printf("x!=y"); }</pre>	<pre>(vi) main() { int x; for (x=0; ++x>170:1; ++x) if(x>3) break; printf("%d\n", x); }</pre>

(1+2+1+1+1+1)

Q7. State the output of following program/program segments

<pre>(i) int x,y; void func(void); void main(void) { int z=1; while (x ++ <= 5) { printf("x=%d, y=%d, z=%d.\n",x,y,z); func(); y++; z++; } main(); printf("x=%d, y=%d, z=%d.\n",x,y,z); } y--; z++; printf("x=%d, y=%d, z=%d.\n",x,y,z); } void func (void) { static int a=5; int b=5; printf("a=%d, b=%d.\n", a,b); x++; y++; a--; b--; }</pre>	<pre>(ii) struct s { char ch; int i; float a; }; main() { static struct s var = {'C', 100, 12.66} f(var); g(&var); } f(struct s v) { printf("%c %d %f\n", v.ch, v.i, v.a); } g(struct s *v) { printf("%c %d %f", v->ch, v->i, v->a); }</pre>
<pre>(iii) main() { static int arr[3][3] = {2,5,1,6,8,4,1,4,3}; int i,j; for (i =2; i>=0; i--) { for(j=2; j>=0; j--) printf("%d %d\n", arr[i][j], *((arr+i)+j)); } }</pre>	

(4+2+2)