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I SEMESTER M.SC. (APPLIED MATHEMATICS AND COMPUTING)

END SEMESTER EXAMINATIONS, NOV/DEC 2016

SUBJECT: C-PROGRAMMING TECHNIQUES [MAT- 609]

REVISED CREDIT SYSTEM
(02/12/2016)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ANY FIVE FULL** questions.
- Missing data may be suitable assumed.

1A.	Explain the following C tokens: i) ?: ii) *break* iii) &	**3**
1B.	List all the relational and logical operators in C. Also, give the precedence among them.	**3**
1C.	Explain call by value and call by reference in C.	**4**
2A.	Explain the working of nested if-else statement.	**3**
2B.	Design and algorithm and a flowchart to obtain the sum of all the squares of digits of a number.	**3**

2C.	Point out the errors, if any, in the following declarations:
	i)
	`int sum-1,n=0;`
	`a=0;`
	`printf("%d",a);`
	`sum-1+=n;`
	`printf("\n%d",Sum-1);`
	ii)
	`void main()`
	`{`
	`int stud[4][]={24,34,12,44};`
	`for(i=0;i<4;i++)`
	`printf("\n%d",stud[][i]);`
		4

3A.	Describe the declaration and initialization of two-dimensional arrays in C with examples.	**3**
3B.	Write a C-program to check whether a string is a palindrome.	**3**
3C.	Evaluate the following expressions as in C: i) $5*'A'-(('Z'/2)/3)$ ii) int $i=5, j=8;$ $(i++)+(j--)+(--j)$ iii) $((8+5)/3)\%2-4$ iv) float $x=0.5, y=0.75;$ $(x>y)?x-y:y-x$	**4**
4A.	What is a pointer? How is it declared and initialized? Discuss briefly the merits of using pointers.	**3**

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4B.	Write an equivalent code using *switch* statement for the following:
	`if(c>=65 && <=97)`
	`  c=c+32;`
	`else if(c>=97 && c<=122)`
	`  c=c-32;`
		3

4C.	Describe, in brief, the primary datatypes of variables in C.	**4**
5A.	Declare a *structure* that stores the information of an employee like name, age, years of experience and department. Initialize it to the following information about two employees. Name: Ram Mohan — Name: Prem C. Age: 35 yrs — Age: 28 yrs Experience: 11 yrs 1 month — Experience: 4 yrs 10 month Department: Finance — Department: Records	**3**
5B.	Write a recursive user-defined function to obtain the n^{th} number in the sequence 1, 3, 6, 10, 15, 21……..	**3**
5C.	Write a short note on the following: i) *strcat*() ii) Explicit type conversions	**4**
6A.	Write a C-program to implement linear search in an array of integers.	**3**
6B.	What are the steps involved in constructing a valid C identifier?	**3**

6C.	What is the output of the following C snippets?
	i)
	`int x=4,y=0,z;`
	`while(x>=0)`
	`{`
	`if(x==y)`
	`break;`
	`else`
	`printf("\n%d %d",x,y);`
	`x--;`
	`y++;`
	`}`
	ii)
	`void change(int *,int);`
	`void main()`
	`{`
	`int a[]={2,4,6,8,10},i;`
	`change(a,5);`
	`for(i=0;i<5;i++)`
	`printf("\n%d",a[i]);`
	`}`
	`void change(int *b,int n)`
	`{`
	`for(i=0;i<n;i++)`
	`*(b+i)=*(b+i)+5;`
	`}`
		4