

Registration No. :

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Total number of printed pages – 4

B. Tech  
BE 2105

First Semester Examination – 2011

PROGRAMMING IN C

Full Marks – 70

Time : 3 Hours

Answer Question No. 1 which is compulsory and any **five** from the rest.

The figures in the right-hand margin indicate marks.

1. Answer the following questions : 2×10

(a) Find the output of the following program :

```
main()
{
char *p;
printf("%d %d ",sizeof(*p),sizeof(p));
}
```

(b) What would be the output of the following program ?

```
main()
{
int i=5;
printf("%d%d%d%d%d",i++,i--,++i,--i,i);
}
```

(c) Find the output of the following program :

```
#define int char
main()
{
int i=65;
printf("sizeof(i)=%d",sizeof(i));
}
```

P.T.O.

- (d) What value may be returned by the following function when it is called by 15 ?

```
recur (int num)
{ if((num/2) !=0) return (recur(num/2)*10 + num%2);
  else return 1; }
```

- (e) void main()

```
{ int i=1;
  if(!i) printf("IndiaBIX,");
  else { i=0; printf("C-Program");
        main(); }
}
```

- (f) What would be the output of the following program ?

```
main()
{
  int i=0;
  for(;i++;printf("%d",i)) ;
  printf("%d",i);
}
```

- (g) Find the output of the following :

```
void main()
{ int a[]={1,2,3,4,5,6};
  int *ptr = a+2; printf("%d",*--ptr);
}
```

- (h) What will be output if you will compile and execute the following c code ?

```
void main(){
int a=15,b=10,c=5;
if(a>b>c )
printf("True");
else
printf("False");
}
```

- (i) Find the output of the following program :

```
void main()
{
    static int i=5;
    if(--i)
    {
        main();
        printf("%d ",i);
    }
}
```

- (j) Find the output of the following program :

```
void main()
{ int x=10,y=20,p,q;
  p=add(x,y);
  q=add(x,y);
  printf("%d %d",p,q); }
add(int a,int b)
{
  a+=a;
  b+=b;
  return(a);
  return(b); }
```

2. (a) What are the storage classes? Discuss all storage class using example. 5  
(b) Write an algorithm to find the sum of the digits of a given positive integer. Write the corresponding C-program using recursion. 5
3. (a) Explain all the loop structures available in 'C'. 5  
(b) Write a program to compute sin series. 5  
$$\sin(x) = x - x^3/3! + x^5/5! - x^7/7! + \dots + x^n/n!$$
4. (a) A palindrome is a string which reads the same forwards and backwards. For example, MADAM. Write a C-program to check whether a given string is a palindrome or not. 5  
(b) Write a C-program to count the number of vowels in a given string. 5

5. (a) What is a command line argument ? Explain with an example. 5  
(b) Write a program to store 100 records in 1 structure with the help of arrays. 5
6. Write a C-program to create data for 50 students (roll, name, mark1, mark2, mark3, termmark) using structure and then find the total marks for each student and average mark of all students. 10
7. (a) What are the uses of malloc () and calloc () functions in C ? In which header file these two functions are defined ? What is the full syntax of these functions ? 5  
(b) Give an example (in C code) of any one of the above functions to allocate memory for a 2 D integer matrix with 'm' rows and 'n' columns. 5
8. (a) Explain the call by value and call by reference with examples. 5  
(b) What kind of file accesses is possible with C-programming ? What are the different modes that a file in C can be handled ? 5

