

**CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY****First Semester of B. Tech. (CE/IT/EC) Examination****December 2016****CE141 Computer Concepts & Programming****Date: 21.12.2016, Wednesday****Time: 01:30 p.m. To 04:30 p.m.****Maximum Marks: 70****Instructions:**

1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.

**SECTION 1****Q-1 Do as Directed.**

1. **Fill in the blanks with appropriate word:** 2
  - a. C token 'break' is an example of a/an \_\_\_\_\_, while 'mybreak' is an example of a/an \_\_\_\_\_.
  - b. The size of unsigned short int data type is \_\_\_\_\_ bits.
2. **State True or False with Justification:** 3
  - a. Every C program must have at least one user defined function.
  - b. The getchar() function accepts any character typed in. This also includes RETURN and TAB.
  - c. isdigit() is a function of ctype.h file which checks whether the argument is character or not.
3. **Give output of the following C code:** 2

<ol style="list-style-type: none"> <li>a. <pre>#include&lt;stdio.h&gt; display(){     printf("Made in India\n");     main(); } void main(){     printf("Make in India\n");     display();}</pre></li> </ol>	<ol style="list-style-type: none"> <li>b. <pre>#include &lt;stdio.h&gt; void main() {     enum {ORANGE = 5, MANGO,           BANANA = 4, PEACH};     printf("PEACH = %d\n", PEACH); }</pre></li> </ol>
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**Q-2 [A] Answer the following questions.**

1. Draw a flow chart that checks whether the entered number is positive, negative or zero. 2
2. Explain any two relational operators available in C. 2
3. Write down only logic to evaluate the following expression in C programming, 3  
 $y = x * x$ , if  $x > 0$  **or**  $y = x$ , if  $x \leq 0$ ; using
  - a. if...else statement
  - b. conditional operator

**[B] Answer the following questions.**

1. Draw basic structure of C program. 2
2. Write a program that makes addition of two 3 x 3 arrays and print the result. 2
3. Write a program to read the name "Narendra Damodardas Modi" in three parts (First name, middle name and last name) using the scanf() statement and to display the 3

same name in following format using printf() statement.

- a. Narendra D. Modi      b. N.D. Modi      c. NaMo

**OR**

**[B] Answer the following questions.**

1. What happens when an array with a specified size is assigned at compile time, 2
  - a. with values less than the specified size.
  - b. with values more than the specified size.
2. Differentiate: Low level language and High level language. 2
3. Write a program to create interactive calculator which scans the operator '+' or '-' 3 and two numbers from user and print the result. Use switch statement.

**Q-3 [A] Do as directed.**

1. Give output of the following C code. 3

a. 

```
#include<stdio.h>
void main() {
    A:printf("Peter ");
    goto B;
    D: printf("a peck of ");
    goto E;
    B: printf("Piper ");
    C: printf("picked ");
    goto D;
    E: printf("pickled ");
    goto F;
    F: printf("peppers ");
}
```

b. 

```
#include <stdio.h>
void main(){
    int i, j, rows=5;
    for(i=1; i <= rows; ++i){
        for(j=1; j <= i; ++j) {
            printf("*");
        }
        printf("\n");
    }
}
```

2. Define a structure DATE\_STRUCT containing three members: integer month, integer date and integer year. Develop a program that would assign values to the individual member and display the date in following form: 21/12/2016. Also check that year is leap year or not. 4

**[B] Answer the following questions.**

1. Fill in the blanks with appropriate words. 2

- a. To store a list of temperature recorded every hour in a full day, programmer can use \_\_\_\_\_ data structure and statement for the same is 'float \_\_\_\_\_'.
- b. String is terminated with \_\_\_\_\_ character.

2. If an array is declared as float x[5][3]; then what will be address of x[2][2] if the address of the first element is 1000? Explain with memory layout. 2

3. Following table shows comparison between pre-test loop and post-test loop. Fill the table with appropriate word / number. 3

	Pre-test loop	Post-test loop
Initialization	Once	Once
Number of test	_____	n
Minimum iteration	Not even once	_____
Body of the loop executed	n	_____

**OR****Q-3 [A] Do as directed.**

1. Give output of the following C code. 2
    - a. 

```
#include<stdio.h>
void main(){
    int c = 1;
    for( ; ; ) {
        if(c == 5)
            break;
        printf("%d",c);
        c++;
    }
}
```
    - b. 

```
#include<stdio.h>
void main(){
    int m = 5;
    if(m<3) printf("%d",m+1);
    else if(m<5) printf("%d",m+2);
    else if(m<7) printf("%d",m+3);
    else printf("%d",m+4);
}
```
  2. The expression ' $!(x \leq y)$ ' is same as the expression ' $x > y$ '. Justify the statement. 2
  3. Explain else...if ladder with example. 3
- [B] Do as directed.**
1. Fill in the blanks with appropriate words 2
    - a. \_\_\_\_\_ rule decides the order in which multiple occurrences of the same level operator are applied.
    - b. By default, \_\_\_\_\_ is the return type of user defined function.
  2. What is the value of variable '*len*' in (a) and (b)? 2

```
int len; char str[25] = "CHARUSAT";
```

    - a. `len=strlen(str);`      b. `len=sizeof(str);`
  3. Explain type conversion in C. 3

**SECTION 2****Q-4 Do as directed.**

1. Fill in the blanks with appropriate words. 2
  - a. An array created using malloc() at run time is referred to as \_\_\_\_\_ array.
  - b. A variable declared inside a function by default assumes \_\_\_\_\_ storage class.
2. State True or False with Justification. 3
  - a. A pointer variable cannot be initialized with NULL or Zero value.
  - b. Every file ends with '\0'.
  - c. The dynamic memory allocation takes place in stack memory.
3. Give output of following code: 2
  - a. 

```
#include<stdio.h>
int moddiv(int m,int n)
{
    return (m%n);
}
void main()
{
    int x=5,y=3,z;
    z=moddiv(x,moddiv(x,y));
    printf("%d",z);
}
```
  - b. 

```
#include<stdio.h>
void main(){
    int i=3;
    int *j;
    int **k;
    j=&i;
    k=&j;
    printf("%d",*(&i));
    printf("%d",**k);
}
```

**Q-5 [A] Answer the following questions.**

1. What is function prototype? Is it optional? 2
2. Explain rules to pass an array to a function. 2
3. Write a C program to swap two values using pointer. 3

**[B] Answer the following questions.**

1. Differentiate strcmp() and strncmp(). 2
2. A union can have another union as one of the member. Justify the statement. 2
3. Write a C program that finds length of string 'CHARUSAT' without using functions of string.h file. 3

**OR**

**[B] Answer the following questions.**

1. Differentiate Structure and Union. 2
2. Define pointer. How we can access any variable through its pointer? 2
3. Explain 'function with argument no return type' in detail with example. 3

**Q-6 [A] Answer the following questions.**

1. Differentiate dynamic memory allocation and static memory allocation of variable. 3
2. Write a program that prints even numbers from 1 to 50 using loop. 4

**[B] Answer the following questions.**

1. Explain meaning of the following statements. 3  
 a. fseek(fp, m, 0)      b. fseek(fp, -m, 2)      c. fseek(fp, 0L, 1)
2. Write a program that creates a file named 'intro.txt'. Print your personal details like name, age and phone number in to that file by using fprintf(). Also read same data from that file and print them on screen. 4

**OR**

**[A] Answer the following questions.**

1. Explain realloc() with syntax and example. 3
2. Check following C code. Find runtime error if any. Also discuss advantages of pointer to function. 4

```
int *function(){
    int x=10;
    return(&x);
}
void main(){
    printf("%d",*(function()));
}
```

**[B] Answer the following questions.**

1. Give difference between compiler and interpreter. 3
2. Write a program using pointers to compute the sum of all elements stored in an array of size 5. 4

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