

# Software Development Fundamentals-II (15B11CI211)

## Tutorial-2

### **Topics: Pointers, Structures, Union and Enumeration.**

Q1. Are the expressions `*ptr++` and `++*ptr` same? Justify your answer. [CO1]

Q2. What would be the output of the following program? Justify your answer. [CO1]

```
int main()
{
    int arr[ ]={12,13,14,15,16};
    printf("\n%d%d",sizeof(arr),sizeof(*arr),sizeof(arr[0]));
    return 0;
}
```

Q3. What would be the output of the following program assuming base address of array as 1002? Justify your answer. [CO1]

```
int main()
{
    int a[3][4] = {
        1,2,3,4,
        5,6,7,8
        9,10,11,12
    };
    printf("\n%u%u%u",a[0]+1,* ( a[0]+1), *(( a+0)+1));
    return 0;
}
```

Q4. Would the following program compile? Justify your answer. [CO1]

```
int main()
{
    int a=10,*j;
    void *k;
    j=k=&a;
    j++; k++;
    printf("\n%u %u,j,k);
    return 0;
}
```

Q5. What will be the output of the following program? Justify your answer. [CO1]

```
int main()
{
    char *ptr;
    char string[] = "learn C from IIIT";
    ptr = string;
    ptr += 6;
    printf("%s",ptr);
    return 0;
}
```

Q6. What will be the output of the following program? Justify your answer. [CO1]

```
int main()
{
    char arr[15] = "pointer array";
    int *ptr;
    ptr = arr;
    printf("%c",ptr[1]);
    return 0;
}
```

Q7. What will be the output of the following program? Justify your answer. [CO1]

```
int main()
{
    char *str = "His";
    int i;
    for(i = 0; i < strlen(str); i++)
        printf("%s", str++);
    return 0;
}
```

Q8. What will be the output of the following program? Justify your answer. [CO1]

```
int main(){
    char a = 30, b = 5;
    char *p = &a, *q = &b;
    printf("%d", p - q);
    return 0;
}
```

Q9: Write a program to pass an array to a function using pointer which prints maximum value. [CO1]

Q10.What will be the output of the following program? Justify your answer. [CO1]

(a)

```
int main()
{
    struct sample{
        int a;
        int b;
        sample *s;
    }t;
    printf("%d,%d",sizeof(sample),sizeof(t.s));
    return 0;
}
```

(b)

```
int main()
{
    union values
    {
        unsigned char a;
        unsigned char b;
        unsigned int c;
    };
    union values val;
    val.a=1;
    val.b=2;
    val.c=300;

    printf("%d,%d,%d",val.a,val.b,val.c);
    return 0;
}
```

Q 11 What will be the output of the following? Justify your answer. [CO1]

```
#include <stdio.h>
enum day {sunday = 1, tuesday, wednesday, thursday, friday, saturday};
int main()
{ enum day d = thursday;
  printf("The day number stored in d is %d", d);
  return 0;
}
```

### **Recommended reading material**

1. B W. Kernighan and Dennis M. Ritchie, "The C Programming Language", 2nd Edition, Prentice-Hall India, New Delhi, 2002.
2. H. Schildt, "C: The Complete Reference", Tata McGraw-Hill Education, 4<sup>th</sup> Edition, TMH 2000.
3. Y. P. Kanetkar, "Exploring C", BPB Publication, 2nd Edition, 2014.
4. Online Study Material.