Dr. Vivek Sehgal

Roll No:..................

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-3 – December 2017

B.Tech (CSE/IT/ECE/CE/BI) 1st Semester

COURSE CODE: 10B11CI111 MAX. MARKS: 35

COURSE NAME: Introduction to Computers and Programming

COURSE CREDITS: 04 MAX. TIME: 2 Hrs

Note: All questions are compulsory. The carrying of mobile phone during examinations will be treated as a case of unfair means. All questions carry equal marks.

TEST 3 EXAMINATION - DECEMBER 2017

1. (a) State whether the following are true or false, explain why. [3.5+3.5]
   i. An array can store many different types of values.
   ii. An array size can be of data type double.
   iii. If there are fewer initializers in an initializer list than the number of elements in the array, C automatically initializes the remaining elements to the last value in the list of initializers.
   iv. It's an error if an initializer list contains more initializers than there are elements in the array.
   v. An individual array element that's passed to a function as an argument of the form a[i] and modified in the called function will contain the modified value in the calling function.

   (b) For each of the following, write a statement that performs the indicated task. Assume that floating-point variables number1 and number2 are defined and that number1 is initialized to 7.3.
   i. Define the variable fPtr to be a pointer to an object of type float.
   ii. Assign the address of variable number1 to pointer variable fPtr.
   iii. Print the value of the object pointed to by fPtr.
   iv. Assign the value of the object pointed to by fPtr to variable number2.
   v. Print the value of number2.
   vi. Print the address of number1. Use the %p conversion specifier.
   vii. Print the address stored in fPtr. Use the %p conversion specifier. Is the value printed the same as the address of number1?

2. (a) Explain the following with an example and syntax: [4+3]
   i. A non-constant pointer to non-constant data,
   ii. A constant pointer to non-constant data,
   iii. A non-constant pointer to constant data, and
   iv. A constant pointer to constant data.

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(b) Write the outputs for following programs

(i)
```c
#include <stdio.h>
int main()
{
    int ary[4] = {1, 2, 3, 4};
    printf("%d\n", *ary);
}
```

(ii)
```c
#include <stdio.h>
int main()
{
    const int ary[4] = {1, 2, 3, 4};
    int *p;
    p = ary + 3;
    *p = 5;
    printf("%d\n", ary[3]);
}
```

(iii)
```c
#include <stdio.h>
void f(char *k)
{
k++;
k[2] = 'm';
}
void main()
{
char s[] = "hello";
f(s);
printf("%c\n", *s);
}
```

(iv)
```c
#include <stdio.h>
int main()
{
    char str[10] = "hello";
    char *str1 = "world";
    strncat(str, str1, 9);
    printf("%s", str);
}
```

(v)
```c
#include <stdio.h>
int main()
{
    int ary[2][3][4], j = 20;
    ary[0][0] = &j;
    printf("%d\n", *ary[0][0]);
}
```

(vi)
```c
#include <stdio.h>
struct student
{
int no;
char name[20];
}
void main()
{
struct student s;
s.no = 8;
printf("hello");
}
```

3. (a) Two dice are rolled 100 times. WAP to: [4+3]
   i. Print the random response of each trial in an array r[100].
   ii. Print the frequency of each outcome in fr[13](fr[2] - fr[12]).

   (b) WAP to covert the lower-case string to upper-case string using user define function.

4. (a) WAP for binary search by using a function **binarySearch.** [3.5+3.5]

   (b)WAP for bubble sort by receiving array arguments in pointer variable.

5. (a)WAP for matrix multiplication [4+3]

   or

   WAP to store the information (name, roll and marks) of 10 students using structures.

   (b)WAP to read a line from a file and display it.

TEST-2 EXAMINATION - CH 2017