PSUC I Test 2019 (ODD SEM) Scheme

Type: MCQ

Q1. What is the output of the following code snippet? (0.5)

```
#include<stdio.h>
void main()
{
int a[10]={1, 2, 4, 5, 6};
int i=1,p;
p=++a[1];
printf("%d, %d, %d", a[5], p, a[i++]);
}
```

1. 0,3,3
2. 0, 3, 2
3. 0, 3, 4
4. 0, 2, 3

Q2. For the error free C program below, what will be the output? (0.5)

```
#include<stdio.h>
int main( )
{
int n=0;
  do {
       n++;
       if ((n % 3) == 0 || (n % 4) ==0)
        printf("%d\t", n);
      } while(n<5);
}
```

1. 0 3
2. 0 4
3. 3 4
4. 4 4

Q3. For initialization a = 2, c = 1 , the value of a and c after the execution of the instruction:
c = (c) ? a = 0 : 2 will be?(0.5)

1. a = 1, c = 2;
2. a = 2, c = 2;
3. a = 2, c = 2;
4. a = 0, c = 0;

Q4. For the error free C code snippet below, what will be the output? (0.5)

```
int main()
{
```

```
int i = 4;
switch ( i )
{
  default: ;
  case 3:
    i += 5;
    if ( i == 8) {
          i++;
          if (i == 9) break;
          i *= 2;
    }
    i -= 4;
    break;
  case 8:
    i += 5;
    break;
}
printf("%d", i);
}
```

1. 8
2. 5
3. 4
4. 9

Q5. Assuming int data type occupies 4bytes of location, what will be sizeof(arr) in the below statement?
int arr[10]={12,13,14}. (0.5)

1. 12 bytes
2. 10 bytes
3. 44 bytes
4. 40 bytes.

Q6. What is the output of the following error free C program? (0.5)

```
#include<stdio.h>
int main()
{
  int i=2, n, j;
        for (n=5; i<n; i++)
        {
          for(j=2; j<=4; j++)
```

```
            {
              if (j%2 != 0)
              continue;
             printf("%d\t", i*j);
            }
        if (i%3 == 0)
        break;
    }
  return 0;
 }
```

1. 4 8 6 12
2. 4 6 8 10
3. 4 8 10 12
4. 6 4 8 10

Q7. Which of the for loop given below has the range of similar indexes of 'i' used in for (i = 0;i < n; i++) ? (0.5)

1. for (i = n; i>0; i--)
2. for (i = n; i >= 0; i--)
3. for (i = n-1; i>0; i--)
4. for (i = n-1; i>-1; i--)

Q8. What is the output of below given code? (0.5)

```
#include <stdio.h>
 int main()
   {
      enum result {fail, pass, unknown, known};
      enum result s1=unknown;
      if(pass! =2)
       printf("%d",s1);
      else
      printf("%d",known);
   }
```

1. Unknown
2. 1
3. 2
4. 3

Q9. A flowchart needs to represent a situation where a student is awarded 'Pass' or 'Fail'. If the mark is > 50 award 'Pass', else award 'Fail'. Which of the following construct is used in this situation? (0.5)

1. Decision
2. Looping
3. Sequential

4. Random

Q10. What is the output of the following error free C code? (0.5)

```
#include<stdio.h>
int main( )
{
  int x = 15, z = 3;
  int y = x >> 2;
  printf(" %d\n", y);
}
```

1. 6
2. 3
3. 60
4. 30

Type: DES

Q11. Write a C program to input a number N and check if the digit in the tenth place of N is a perfect square. If it is perfect square, find and display the square root of that digit. Else find and display the square of that digit. (Use if-else statements only) (2)

Ans:

(input - o.25M, extracting digit in tenth place-0.5M, checking for perfect square - 0.5M, finding square root - 0.25M, finding square - 0.25M, displaying-0.25)

```
#include<stdio.h>
int main()
{
int sum,n;
printf("enter a number");
scanf("%d", &n);
n=n/10;
n=n%10;
if(n==1 || n==4 || n==9)
{
sum=sqrt(n);
}
else
sum=n*n;
printf("sum=%d", sum);
}
```

Q12. Differentiate between linear search and binary search (any two points). Write a C program to sort the elements of an array in ascending order using bubble sort and display the sorted elements. (3)

Ans:

(.5+.5=1;)

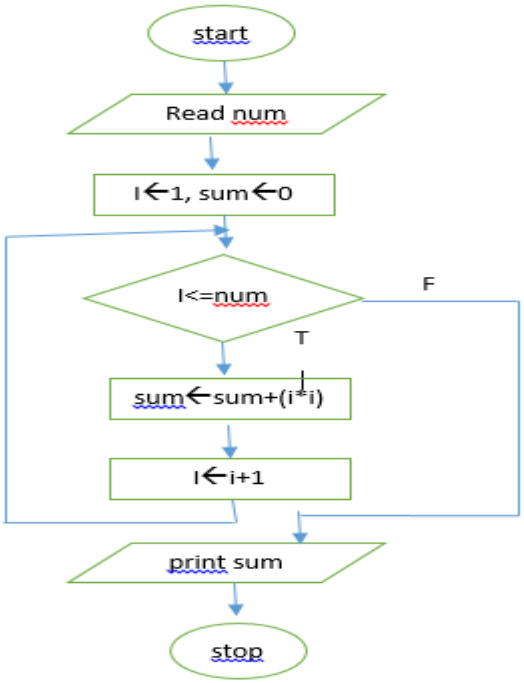
Linear Search	Binary Search
Can be applied on sorted and unsorted list of items	Can be applied only on sorted list of items
Searching time is more	Searching time is less

```
#include <stdio.h>
int main()
{
 int array[100], n, c, d, swap, smallest;
 printf("Enter number of elements\n");
 scanf("%d", &n);
 printf("Enter %d integers\n", n);
 for (c = 0; c < n; c++)
  scanf("%d", &array[c]);
 for (c = 0 ; c < n - 1; c++)
 {
  for (d = 0 ; d < n - c - 1; d++)
  {
   if (array[d] > array[d+1])
   {
    swap = array[d];
    array[d] = array[d+1];
    array[d+1] = swap;
   }
  }
for (c = 0; c < n; c++)
printf("%d", array[c]);
}
return 0;
}
```

(variables declaration .25+ accepting limit and elemets .5 + sorting logic 1 + .25 for display the sorted elements.

Q13. Draw a flowchart to accept a number N from the user and print the sum of squares of all natural numbers from 1 to N. (2)

Ans. (start,stop, read and display =1m + 1 marks for logic)



Q14. Differentiate between exit controlled and entry controlled loop (any two points). Write a C program to read N numbers (positive integers) and find and display the second largest number among them (without using arrays and functions). (3)

Ans:

difference → (1/2 +1/2)

exit controlled loop: Test is done at the end of the loop.

Loop body is executed atleast once if the test condition is false at the beginning

entry controlled loop : Test is done before the start of the loop

Loop body is not executed if the test condition is false at the beginning

```
int main( ){
int n,i,num,first=0,sec=0;
printf("Enter no. of numbers: ");
scanf("%d",&n);
printf("Enter numbers, one by one: ");
for(i=1;i<=n;i++){
scanf("%d",&num);
if(num > first) {
   if (first>sec)
     sec=first; first=num;
    }
          if(num> sec &&num< first)
   sec = num;
}
printf("\Second largest is %d ",sec);
return 0;
}
```

Declaration/Initialization - 0.5; Input/Output - 0.5; Logic - 1M