Thapar University, Patiala

Computer Science & Engineering Department

BE 1st Year Mid Semester Test — UTA017: Computer Programming I

Sep 25th, 2018 01:00 PM — Time: 02 Hours; MM: 50 (Wt. 25)

Name of Faculty: HSP, RKU, VA, PCH, SES, HKG, RKR, RAP, GS

Note: All questions are compulsory. Assume if any missing data. Write your group number on your answer sheet.

Q1: Write a Program (WAP) to check whether an integer (entered by the user) is an Armstrong number or not, using while loop and if...else statement. **(8)**

A positive integer is called an Armstrong number of digit *n* if

$$abcd... = a^n + b^n + c^n + d^n + ...$$

Q2: Convert $(7834)_{10} = (\ ?\ )_2$ **(3)**

$(1011101)_2 = (\ ?\ )_{10}$ **(3)**

Q3: a) Write syntax of function prototype, function calling, function definition with a suitable example. **(3)**

b) Write the example for function with and without argument passing, with and without return value. **(4)**

Q4: C Program to Find Roots of Quadratic Equation Nature of roots of quadratic equation can be known from the quadrant = b^2-4ac **(9)**

- If $b^2-4ac > 0$ then roots are real and unequal
- If $b^2-4ac = 0$ then roots are real and equal
- If $b^2-4ac < 0$ then roots are imaginary

Q5: How many types of loops are there in C language and their syntax? **(6)**

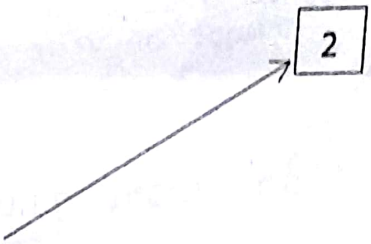
Explain their working using an example program for the sum of the first *n* squares, $1 + 4 + 9 + 16 + ... + n^2$. **(6)**

Q6: What is the code required at boxes 1, 2, 3 and 4 in below mentioned program to get the desired output. **(8)**

```
#include <stdio.h>
int main()
{
```

P.T.O.

```
int num, reversenum=0, remainder,temp;
 printf("Enter an integer: ");
 scanf("%d", &num);
 temp=[redacted];
 while(temp!=0)
 {
    remainder=temp%10;
    reversenum=[redacted];
    temp=[redacted];
 }
 if([redacted])
       printf("%d is a palindrome number",num);
    else
       printf("%d is not a palindrome number",num);
    return 0;
}
```



Output:

```
Enter an integer: 123321
123321 is a palindrome number

Enter an integer: 12345
12345 is not a palindrome number
```