Summer Vacation 2018-19

Class 9

1. Give an advatage of procedure oriented programming language over object oriented programming language.
2. Give two examples of abstraction from the real world (not from the book).
3. Give two examples of polymorphism from the real world (not from the book).
4. Write a program to interchange the value of the two variables using a third variable.
5. Write a program to interchange the value of the two variables without using a third variable.

Class 10

1. What do you understand by the statement that the Strings are immutable?
2. Differentate between implicit and explicit type conversion.
3. Differentiate between keywords and reserved words.
4. Write a program to find the number of trailing zeros (i.e. zeros at the end) in the factorial of 100.
5. Write a program to enter a date (day, month and year seperately) and check if it's a valid date or not. A date is invalid in the following cases.
    1. No of day must be in accordance with the month. For example, April cannot have 30 days or Feb cannot have more than 28/29 depending on whether the year is a leap year or not.
    2. Month must be between one and twelve.

Class 11

1. Perform the following conversions:
    a) $(1234)_{10}=(?)_2$
    b) $(10000001)_2=(?)_{10}$.
    c) $(FACE)_{16}=(?)_{10}$
    d) $(DEAD)_{16}=(?)_2$
    e) $(10)_8=(?)_2$
2. Perform the following calculations:
    a) $(11\ 10\ 00\ 1)_2+(10\ 11\ 11\ 01)_2$
    b) $(01\ 1)_2-(00\ 1)_2$ one's complement method.
    c) $(00\ 1\ 1)_2-(01\ 01)_2$ two's complement method.
    d) $(11\ 10\ 1)_2*(11\ 01)_2$
    e) $(11\ 11\ 11)_2\div(10\ 1)_2$
3. Write a program to enter a number (integer) and convert it into words using Indian Number System. For example: 1234 in words is One Thousand Two Hundered Thirty Four.

Class 12

1. Design a program to enter a positive number and display it as a sum of positive integers. For example for the input 4:
    4
    3 + 1
    2 + 2
    2 + 1 + 1
    1 + 1 + 1 + 1
2. Design a program to test whether a given number is a Smith Number or not. A Smith number is a composite number, the sum of whose digits is the sum of the digits of its prime factors obtained as a result of prime factorization (excluding 1). The first few such numbers are 4, 22, 27, 58.
    Examples:
    1. 666

Prime factors are 2, 3, 3, and 37
Sum of the digits are (6+6+6) = 18
Sum of the digits of the factors (2+3+3+(3+7)) = 18
2. 4937775
Prime factors are 3, 5, 5, 65837
Sum of the digits are (4+9+3+7+7+7+5) = 42
Sum of the digits of the factors (3+5+5+(6+5+8+3+7)) = 42