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Computer Applications

Assignment-1

Class: X **Submission Date: 18/05/22**

1. Write a program in Java to calculate the amount that a customer pays for the taxi that he hires based on the following conditions:

KMS TRAVELLED	AMOUNT PER KM
First 10 kms	30
Next 20 kms	20
Next 40 kms	15
Above 70 kms	12

Input the taxi number and the Number of kilometers travelled by the customer.

2. Write a program to accept a number and check whether it is a Disarium Number or not. A number is called Disarium Number if sum of its digits powered with their respective positions is equal to the number. Example : 135 is Disarium Number as [$1^{1+} 3^{2+} 5^{3} = 135$] . Some other Disarium Numbers are 89, 175 and 518 etc.

3. Write a program to check and display whether two numbers are co-prime or not. Co-prime numbers or prime numbers are those numbers that have their HCF (Highest Common Factor) as 1

4. Write a program to check and display whether two numbers are TWIN PRIME or not.A twin prime is a prime number that has a prime gap of two. Example (3,5), (5,7), (41,43),

5. WAP to input a number and check and print whether it is a Pronic number or not.[Pronic number is the number which is the product of two consecutive integers.

   Example : 12 = 3*4

   20 = 5*4

   42 = 6*7

6. Write a program to input a number and display its Binary equivalent

   Sample Input : $(21)_{10}$

   Sample Output : $(10101)_{2}$

7. Write programs to generate the following patterns on the screen:

a.
```
5
5 4
5 4 3
5 4 3 2
5 4 3 2 1
```

b.
```
1
2 1
3 2 1
4 3 2 1
5 4 3 2 1
```

c.
```
1
2 2
3 3 3
4 4 4 4
5  5 5 5 5
```

8. WAP to print if the number entered is perfect or not.
A perfect number is a positive integer where the sum of all its positive divisors, except itself, is equal to the number itself. Eg. 6 is a perfect number as 1,2 and3 are its divisors and the sum of divisors=1+2+3=6

9. WAP to print sum of following series

   a. S = x/5+ x/8+x/11+x/14+……+x/n
   b. S = 1 + 3/2! + 5/3! + 7/4!..... n

10. Using a Switch statement write a menu driven program for the following:

   a) To input a number and display only those factors of the numbers which are prime.
   Sample Input : 84
   Sample Output : 2, 3, 7
   b) A program that displays the multiplication table from 1 to 10 as show:
   1 2 3 4 5 6 7 8 9 10
   2 4 6 8 10 12 14 16 18 20
   ……

   10 20 30 40 50 60 70 80 90 100

11. Write a program to display all prime palindrome numbers between 10 and 1000.

[A number which is prime as well as palindrome are called prime palindromes]Example: 11, 101, 131, 151…….

12. Write a program to display all the numbers between 100 and 200 which do not contain zeros at any position. Example: 111, 112, 113, ……189, 199

13. Write a program to input a number and check whether it is a happy number or not. A number is called happy if it leads to 1 after a sequence of steps wherein each step number is replaced by the sum of squares of its digit that is if we start with Happy Number and keep replacing it with digits square sum, we reach 1.

    Sample Input: 31

    Sample Output : 31 is a Happy Number [$31 = 3^2 + 1^2 = 10$, $1^2 + 0 = 1$]

14. Write a program to input two integers and find their Highest Common Factor(H.C.F). Example:Sample Input: Enter first integers: 12

    Enter first integers: 8

    Sample Output : H.C.F. of 12 and 8 is = 4

15. Write a program to find the sum of 1st 10 numbers of Lucas series i.e. 2,1,3,4,7,11,18,…. Lucas series is such a series which starting from 2 and 1, and subsequent numbers are the sum of previous two numbers.