Khulna University of Engineering & Technology

Programming Lab (sheet 3)

1. Admission to a professional course is subject to the following conditions:
   a. Marks in mathematics ≥ 60
   b. Marks in physics ≥ 50
   c. Marks in chemistry ≥ 40
   d. Total in all three subjects ≥ 200
      Or
   Total in mathematics and physics ≥ 150

   Given the marks in the three subjects, write a program to process the applications to list the eligible candidates.

2. Write a program to find the sum and average of the following series:
$$1 + 4 + 7 + - - - - - + 19$$

3. Write a program that reverses the digits of a given positive integer. For example, the number **123456** should be written as **654321**

4. Write a program to determine whether the given positive integer **N** is a prime number or not.

5. Write a program to display the multiplication table as in the following example:
$$X * 1 \ = Y$$
$$....$$
$$X * 10 = Y$$

6. Write a program which will calculate 2^n where n denotes the power of 2.

7. Write a program to draw the following figure:
```
* * * * * _ _ _ _ _
* * * * * _ _ _ _ _
* * * * * _ _ _ _ _
- - - - - - - - - -
- - - - - - - - - -
- - - - - - - - - -
```

8. Write a program to evaluate the following function
$$\sin x = x - x^3 / 3! + x^5 / 5! - x^7 / 7! + ...$$

9. Construct a program which will solve the following series
$$1^2 + 2^2 + 3^3 + 4^2 + ...+ n^2 \ \textbf{and}$$
$$\frac{1}{1^2} + \frac{1}{2^2} + \frac{1}{3^2} + \frac{1}{4^2} + ...+ \frac{1}{n^2} \ \textbf{and}$$
$$\frac{1}{1^3} + \frac{1}{2^3} + \frac{1}{3^3} + \frac{1}{4^3} + ...+ \frac{1}{n^3}$$

10. Write program to print the following outputs

    (a) 1
        2 2
        3 3 3
        4 4 4 4
        5 5 5 5 5

    (b) * * * * *
         * * * *
          * * *
           * *
            *

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