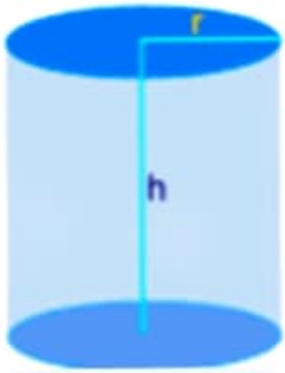
a) Volume of a cylinder is given by the formula below. Write a C **program** to find the volume and surface area of the given cylinder. Prompt the user to enter radius and height. (use the formulae provided below) (10 marks)



$$\text{Volume} = \pi r^2 h$$

$$\text{Surface Area} = 2\pi r^2 + 2\pi r h$$

```
#include <stdio.h>
#include <math.h>

int main() {
   // Declare variables
   float radius, height, volume, surfaceArea;

   // Prompt user for input
   printf("Enter the radius of the cylinder: ");
   scanf("%f", &radius);

   printf("Enter the height of the cylinder: ");
   scanf("%f", &height);

   // Calculate volume and surface area
   volume = M_PI * pow(radius, 2) * height;
   surfaceArea = 2 * M_PI * pow(radius, 2) + 2 * M_PI * radius * height;

   // Display results
   printf("\nVolume of the cylinder: %.2f\n", volume);
   printf("Surface Area of the cylinder: %.2f\n", surfaceArea);

   return 0;
}
```

a) A company decided to give bonus of 5% to employee if his/her year of service is more than 5 years. Ask user for their salary and year of service and print the net bonus amount. (10 marks)

```c
#include <stdio.h>

int main() {
  // Declare variables
  float salary, bonus;
  int yearsOfService;

  // Prompt user for input
  printf("Enter your salary: ");
  scanf("%f", &salary);

  printf("Enter your years of service: ");
  scanf("%d", &yearsOfService);

  // Check if years of service is more than 5 to determine bonus eligibility
  if (yearsOfService > 5) {
    // Calculate bonus (5% of salary)
    bonus = 0.05 * salary;

    // Display bonus amount
    printf("\nCongratulations! You are eligible for a bonus.\n");
    printf("Net bonus amount: %.2f\n", bonus);
  } else {
    // Display message for not meeting eligibility
    printf("\nSorry, you are not eligible for a bonus.\n");
  }

  return 0;
}
```

a) You are required develop a C program to calculate the Body Mass Index (BMI) of an individual based on their weight (in kilograms) and height (in meters). The BMI is calculated using the formula: BMI = weight / height^2

Write a C program to implement the following: (10 Marks)

i. Prompt the user to enter Weight (a floating-point number in kilograms) and Height (a floating-point number in meters)

ii. Calculate the BMI using the formula provided above

I)

```
#include <stdio.h>

int main() {
  // Declare variables
  float weight, height, bmi;

  // Prompt user for input
  printf("Enter your weight in kilograms: ");
  scanf("%f", &weight);

  printf("Enter your height in meters: ");
  scanf("%f", &height);

  // Calculate BMI
  bmi = weight / (height * height);

  // Display the calculated BMI
  printf("\nYour Body Mass Index (BMI): %.2f\n", bmi);

  return 0;
}
```