

q.1

```
#include <iostream>
using namespace std;

int main() {
    char ch;

    cout << "Enter a character";
    cin >> ch;

    if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u' ||
        ch == 'A' || ch == 'E' || ch == 'I' || ch == 'O' || ch == 'U') {
        cout << ch << " is a vowel." << endl;
    }
    else {
        cout << ch << " is not a vowel" << endl;
    }

    return 0;
}
```

```
Enter a character a
a is a vowel.
```

```
-----
Process exited after 5.845 seconds with return value 0
Press any key to continue . . .
```

q.2

```
#include <iostream>
using namespace std;
int main()
{
    cout<<"abdullah abdul jabbar"<<endl;
    cout<<"SAP_ID:72562"<<endl;
    float temperature;

    cout << "Enter the temperature";
    cin >>temperature;

    if (temperature > 35) {
        cout << "It is a hot day"<<endl;
    }
    else if (temperature >= 25 && temperature <= 35) {
        cout << "It is a pleasant day." << endl;
    }
    else {
        cout << "It is a cool day"<<endl;
    }

    return 0;
}
```

```
abdullah abdul jabbar
SAP_ID:72562
Enter the temperature25
It is a pleasant day.
```

```
-----
Process exited after 4.007 seconds with return value 0
Press any key to continue . . .
```

q.3

```
#include <iostream>
using namespace std;

int main()
{
    cout << "NAME:abdullah abdul jabbar" << endl;
    cout << "SAP_ID: 72562" << endl;

    int score;
    char grade;

    cout << "Enter your test score: ";
    cin >> score;

    if (score >= 90) {
        cout << "grade: A" << endl;
    }
    else if (score >= 80) {
        cout << "grade: B" << endl;
    }
    else if (score >= 70) {
        cout << "grade: C" << endl;
    }
    else if (score >= 60) {
        cout << "grade: D" << endl;
    }
    else {
        cout << "grade: F" << endl;
    }

    return 0;
}
```

```
NAME:abdullah abdul jabbar
SAP_ID: 72562
Enter your test score: 92
grade: A
```

```
-----
Process exited after 1.733 seconds with return value 0
Press any key to continue . . .
```

q.4

```
#include <iostream>
#include <cmath>
using namespace std;

int main() {
    int choice;
    int a, b;
    float x, y, num;

    do {
        cout<<"Calculator Menu"<<endl;
        cout << "1.Addition"<<endl;
        cout << "2.Subtraction"<<endl;

        cout << "4. Division of two integers\n";
        cout << "5. Addition of two floating point numbers\n";
        cout << "6. Subtraction of two floating point numbers\n";
        cout << "7. Multiplication of two floating point numbers\n";
        cout << "8. Division of two floating point numbers\n";
        cout << "9. Sine\n";
        cout << "10. Cosine\n";
        cout << "11. Tangent\n";
        cout << "12. Square Root\n";
        cout << "13. Square\n";
        cout << "14. Cube\n";
        cout << "15. Exit\n";
        cout << "Enter your choice: ";
        cin >> choice;

        switch (choice) {
            case 1:
                cout << "Enter two integers: ";
```

case 1:

```
cout << "Enter two integers: ";  
cin >> a >> b;  
cout << "Result: " << a + b << endl;  
break;
```

case 2:

```
cout << "Enter two integers: ";  
cin >> a >> b;  
cout << "Result: " << a - b << endl;  
break;
```

case 3:

```
cout << "Enter two integers: ";  
cin >> a >> b;  
cout << "Result: " << a * b << endl;  
break;
```

case 4:

```
cout << "Enter two integers: ";  
cin >> a >> b;  
if (b != 0)  
    cout << "Result: " << (float)a / b << endl;  
else  
    cout << "Error: Division by zero not allowed.\n";  
break;
```

case 5:

```
cout << "Enter two floating point numbers: ";  
cin >> x >> y;  
cout << "Result: " << x + y << endl;  
break;
```

```
case 6:
    cout << "Enter two floating point numbers: ";
    cin >> x >> y;
    cout << "Result: " << x - y << endl;
    break;

case 7:
    cout << "Enter two floating point numbers: ";
    cin >> x >> y;
    cout << "Result: " << x * y << endl;
    break;

case 8:
    cout << "Enter two floating point numbers: ";
    cin >> x >> y;
    if (y != 0)
        cout << "Result: " << x / y << endl;
    else
        cout << "Error: Division by zero not allowed.\n";
    break;

case 9:
    cout << "Enter angle in radians: ";
    cin >> num;
    cout << "Sine(" << num << ") = " << sin(num) << endl;
    break;

case 10:
    cout << "Enter angle in radians: ";
    cin >> num;
    cout << "Cosine(" << num << ") = " << cos(num) << endl;
```

---



```
case 11:
    cout << "Enter angle in radians: ";
    cin >> num;
    cout << "Tangent(" << num << ") = " << tan(num) << endl;
    break;
```

```
case 12:
    cout << "Enter number: ";
    cin >> num;
    if (num >= 0)
        cout << "Square Root: " << sqrt(num) << endl;
    else
        cout << "Error: Negative number.\n";
    break;
```

```
case 13:
    cout << "Enter number: ";
    cin >> num;
    cout << "Square: " << pow(num, 2) << endl;
    break;
```

```
case 14:
    cout << "Enter number: ";
    cin >> num;
    cout << "Cube: " << pow(num, 3) << endl;
    break;
```

```
case 15:
    cout << "Exiting program...\n";
    break;
```

```
default:
```

---

```
    }

} while (choice != 15);

return 0;
```

## Calculator Menu

1. Addition
2. Subtraction
3. Division of two integers
4. Addition of two floating point numbers
5. Subtraction of two floating point numbers
6. Multiplication of two floating point numbers
7. Division of two floating point numbers
8. Sine
9. Cosine
10. Tangent
11. Square Root
12. Square
13. Cube
14. Exit

Enter your choice: 10

Enter angle in radians: 20

Cosine(20) = 0.408082



q.5

```
#include <iostream>
using namespace std;

int main() {
    int choice;
    int totalSeconds, hours, minutes, seconds;

    cout << "----- Time Conversion Menu -----" << endl;
    cout << "1. Convert seconds to hours, minutes, and seconds" << endl;
    cout << "2. Exit" << endl;

    cout << "Enter your choice: ";
    cin >> choice;

    switch (choice) {
        case 1:
            cout << "Enter total seconds: ";
            cin >> totalSeconds;

            hours = totalSeconds / 3600;
            totalSeconds = totalSeconds % 3600;

            minutes = totalSeconds / 60;
            seconds = totalSeconds % 60;

            cout << hours << " hrs " << minutes << " mins " << seconds << " secs" << endl;
            break;

        case 2:
            cout << "Exiting program..." << endl;
            break;

        default:
            cout << "Invalid choice!" << endl;
    }
    return 0;
}
```

```
----- Time Conversion Menu -----
1. Convert seconds to hours, minutes, and seconds
2. Exit
Enter your choice: 1
Enter total seconds: 350
0 hrs 5 mins 50 secs

-----
Process exited after 9.425 seconds with return value 0
Press any key to continue . . .
```







