

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
- 4. Division of two integers
- 5. Addition of two floating point numbers
- 6. Subtraction of two floating point numbers
- 7. Multiplication of two floating point numbers
- 8. Division of two floating point numbers
- 9. Sine
- 10. Cosine
- 11. Tangent
- 12. Square Root
- 13. Square
- 14. Cube
- 15. 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 . . .
```


