WHITE BOX TECHNIQUE

1. Consider the following program fragment

```
Start
Input A
If (A % 2 == 0)
  Print "Even"
Else
  Print "Odd"
End
```

(a) Draw the Control Flow Graph (CFG) for the above code.
(b) Calculate the Condition Coverage, Statement Coverage, Path Coverage and Branch Coverage

2.Consider the following program fragment

```
Start
Input A, B
If (A > 0)
  If (B > 0)
    Print "A and B Positive"
  Else
    Print "A Positive, B Non-Positive"
Else
  Print "A is Non-Positive"
End
```

(a) Draw the Control Flow Graph (CFG) for the above code.
(b) Calculate the Condition Coverage, Statement Coverage, Path Coverage and Branch Coverage

3.Consider the following program fragment

```
Start
Input Marks
If (Marks >= 90)
  Print "Grade A"
Else If (Marks >= 75)
  Print "Grade B"
Else If (Marks >= 50)
```

```
  Print "Grade C"
Else
  Print "Fail"
End
```

(a) Draw the Control Flow Graph (CFG) for the above code.
(b) Calculate the Condition Coverage, Statement Coverage, Path Coverage and Branch Coverage

4.Consider the following program fragment

```
Start
Input N
Set i = 1
While (i <= N)
  Print i
  i = i + 1
End
```

(a) Draw the Control Flow Graph (CFG) for the above code.
(b) Calculate the Condition Coverage, Statement Coverage, Path Coverage and Branch Coverage

5.Consider the following program fragment

```
Start
Input N
For i = 1 to N
  If (i % 2 == 0)
    Print "Even"
  Else
    Print "Odd"
End
```

(a) Draw the Control Flow Graph (CFG) for the above code.
(b) Calculate the Condition Coverage, Statement Coverage, Path Coverage and Branch Coverage

6.Consider the following program fragment

```
Start
```

```
Input X, Y
If (X > 10) OR (Y < 5)
  Print "Condition Met"
Else
  Print "Condition Not Met"
End
```

(a) Draw the Control Flow Graph (CFG) for the above code.
(b) Calculate the Condition Coverage, Statement Coverage, Path Coverage and Branch Coverage

7.Consider the following program fragment

```
Start
Input Choice
Switch (Choice)
  Case 1: Print "Add"
  Case 2: Print "Subtract"
  Case 3: Print "Multiply"
  Case 4: Print "Divide"
  Default: Print "Invalid Choice"
End
```

(a) Draw the Control Flow Graph (CFG) for the above code.
(b) Calculate the Condition Coverage, Statement Coverage, Path Coverage and Branch Coverage

8.Consider the following program fragment

```
Start
Input N
Set i = 1
Do
  Print i
  i = i + 1
While (i <= N)
End
```

(a) Draw the Control Flow Graph (CFG) for the above code.
(b) Calculate the Condition Coverage, Statement Coverage, Path Coverage and Branch Coverage

9.Consider the following program fragment

```
Start
For i = 1 to 3
  For j = 1 to 2
    If (i == j)
      Print "Equal"
    Else
      Print "Not Equal"
End
```

(a) Draw the Control Flow Graph (CFG) for the above code.
(b) Calculate the Condition Coverage, Statement Coverage, Path Coverage and Branch Coverage

10.Consider the following program fragment

```
Start
Input Age, Income
If (Age > 18) AND (Income >= 50000)
  Print "Eligible for Loan"
Else If (Age > 18) AND (Income < 50000)
  Print "Low Income - Not Eligible"
Else
  Print "Not Eligible due to Age"
End
```

(a) Draw the Control Flow Graph (CFG) for the above code.
(b) Calculate the Condition Coverage, Statement Coverage, Path Coverage and Branch Coverage