Roll No.												

PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING

TEST - 1

Even Semester: 2018-19 | **Date**: 06 March 2019

Course Code: CSE 403 | **Time**: 1 Hour

Course Name: Software Testing & Quality Assurance | **Max Marks**: 40

Programme & Sem: B.Tech (Open Elective) & VIII Sem (Group-I) | **Weightage**: 20%

Instructions:

(i) ***All questions are compulsory***

(ii) ***Non programmable calculators are allowed***

Part A

Answer **all** the Questions. **Each** question carries **two** marks. (4Qx2M=8)

1. Define failure, incidence, test, and test case.
2. Differentiate between white box testing and black box testing
3. What is human testing or static testing?
4. What are the types of structural testing?

Part B

Answer **both** the Questions. **Each** question carries **six** marks. (2Qx6M=12)

5. Explain different levels of testing with a neat diagram
6. Explain code coverage. List the formula for statement, path, condition and function coverage

Part C

Answer **both** the Questions. **Each** question carries **ten** marks. (2Qx10M=20)

7. Design BVA (2 samples of all types) and Equivalence class (2 samples of all types) test cases for a program that accepts month number (1-jan, 2-feb..) and displays the number of days in the month (Exclude leap year condition)

8. Design equivalence class test cases for

a. A simple interest program that applies the following rates

months	Rate of interest
0 to 6	6
>6 and <12	12
>=12 and <24	15
>=24	20

b. A program that finds square root of a number in the range 1<=n<=99

Roll No.												

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PRESIDENCY UNIVERSITY
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TEST - 2

Even Semester: 2018-19 | **Date**: 16 April 2019

Course Code: CSE 403 | **Time**: 1 Hour

Course Name: Software Testing & Quality Assurance | **Max Marks**: 40

Program & Sem: B.Tech & VIII Sem (Open Elective) Group-I | **Weightage**: 20%

Instructions:

(i) ***All questions are compulsory***

(ii) ***Non programmable calculators are allowed***

Part A

Answer **all** the Questions. **Each** question carries **two** marks. (4Qx2M=8)

1. What are the steps involved in path based testing.
2. What type of testing is a decision based testing? Explain with example
3. Design a decision table for R1: drive car if sun is shining and car is repaired, R2: dance if car is repaired and music is playing, R3: if car is not repaired, stay at home and repair car
4. What is the relation between cyclomatic complexity and number of test cases in path based testing?

Part B

Answer **both** the Questions. **Each** question carries **six** marks. (2Qx6M=12)

5. Derive the logical rules and design test case table for the decision table given below

	Conditions/ Courses of Action	Rules					
		1	2	3	4	5	6
Condition Stubs	Employee type	S	H	S	H	S	H
	Hours worked	<40	<40	40	40	>40	>40
Action Stubs	Pay base salary	X		X		X	
	Calculate hourly wage		X		X		X
	Calculate overtime						X
	Produce Absence Report		X				

6. Design path table for triangle classification problem

```
# include

# include

(1) int main ( )

(2) {

(3) int a, b, c, boolean = 0;

(4) printf ("nt Enter side-a :");

(5) scanf ("%d", & a);

(6) printf("nt Enter side-b :");

(7) scanf ("%d", & b);

(8) printf ("nt Enter side-c:");

(9) scanf ("%d", & c);

(10) if ((a > 0) && (a < – 100) && (b > 0) && (b < . 100) && (c > 0) && (c < =100)) {

(11) if ((a + b) > c) && ((c + a) > b) && ((b + c) > a)) {

(12) boolean = 1;

(13) }

(14) }

(15) else {

(16) boolean = -1;

(17) }

(18) if (boolean = = 1) {

(19) if ((a = =b) && (b = =c)) {

(20) printf ("Triangle is equilateral");

(21) }

(22) else if ((a = =b) I I (b = = c) I I (c = = a)) {

(23) print ("Triangle is isosceles");

(24) }

(25) else {

(26) printf("Triangle is scalene");

(27) }
```

```
(28) }
(29) else if (boolean = = 0) {
(30) printf ("Not a triangle");
(31) }
(32) else
(33) printf ("n invalid input range");
(34) }
(35) getch ( );
(36) return -1;
(37) }
```

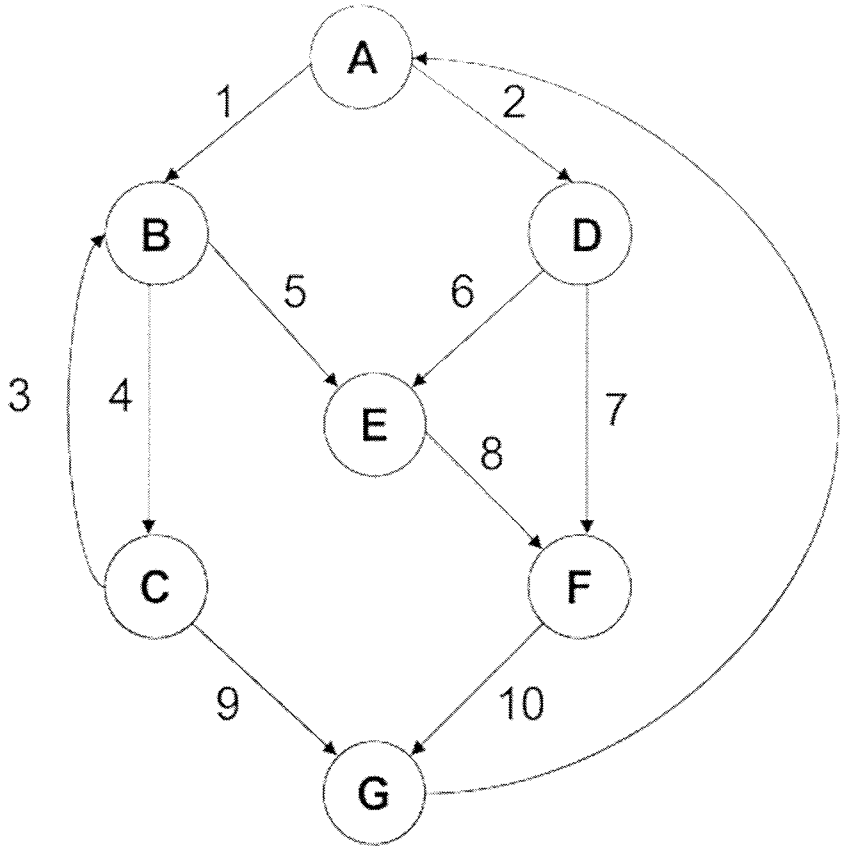
Part C

Answer **both** the Questions. **Each** question carries **ten** marks. (2Qx10M=20)

7. List rules and design test case table for the decision table given below

	Rules							
Conditions	1	2	3	4	5	6	7	8
Infant passengers (age: < 2)	Y	Y						
Youth passengers (age: 2 to 16)			Y	Y				
Frequent flyers					Y	Y		
Domestic flights	Y							
International flighers		Y						Y
Early reservation				Y		Y	Y	
Off-season traveling								Y
Actions	1	2	3	4	5	6	7	8
Offer 10% discounts			X				X	
Offer 15% discounts						X		X
Offer 20% discounts				X	X			
Offer 70% discounts		X						
Offer 80% discounts	X							

8. **List independent paths in the graph shown below. Write the logic as a pseudocode**



14. Define data flow testing. Explain steps involved in designing DC, DP paths. Drive DC and DP paths for the code given

```
10 totalLocks = 0
11 totalStocks = 0
12 totalBarrels = 0
13 Input(locks)
'locks = –1 signals end of data
14 While NOT(locks = –1)
15 Input(stocks, barrels)
16 totalLocks = totalStocks + stocks
17 totalStocks = totalStocks + stocks
18 totalBarrels = totalBarrels + barrels
19 Input(locks)
20 EndWhile
21 Output("Locks sold:," totalLocks)
22 Output("Stocks sold:," totalStocks)
23 Output("Barrels sold:," totalBarrels)
24 lockSales = lockPrice*totalLocks
```


Roll No | | | | | | | | | | | | | |

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END TERM FINAL EXAMINATION

Even Semester: 2018-19 | **Date**: 22 May 2019

Course Code: CSE403 | **Time**: 3 Hours

Course Name: Software Testing and Quality Assurance | **Max Marks**: 80

Program & Sem: B.Tech, VIII & Open Elective (Group-1) | **Weightage**: 40%

Instructions:

(i) Non programmable calculators are allowed

(ii) Draw neat diagrams where necessary

Part A

Answer **all** the Questions. **Each** question carries **five** marks. (4Qx5M=20M)

1. Match the following

	Col I		Col II
1	Incident	A	execution of fault
2	Test	B	is a mistake. In programming terms it is a bug.
3	Failure	C	symptom associated with a failure
4	Fault	D	Exercising software with test case
5	Error	E	is a defect. It is the result of error. It is the representation of error in modes of expression like data flow diagram, code, source code etc

2. Match the following

	Col I		Col II
1	Structural	A	Test case table
2	Desk checking	B	Glassbox testing
3	TestID	C	Decision table
4	Functunal	D	Blackbox testing
5	Stub	E	Manual error checking

3. A program written to read gender of a candidate and print if he is male, female or other (condition age is M or F or O)has _____ independent paths, _____ path test cases, _____functional test cases, _____BVA test cases and _____conditions in stub

4. A program written to read age and gender of a candidate and print if he is male, female or other (condition age is M or F or O) and eligible to vote or not, has _____ independent paths, _____ path test cases, _____functional test cases, _____BVA test cases and _____conditions in stub

Part B

Answer **any four** Questions. **Each** question carries **five** marks. (4Qx5M=20M)

5. Explain levels of testing with a diagram and example
6. Draw a venn diagram to describe the relation between specification, implementation and testing. Explain the diagram.
7. Explain how software can be tested without a computer
8. Draw the flow graph for the code given below

```
1  Program triangle2
2  Dim a,b,c As Integer
3  Dim IsATrinagle As Boolean
4  Output("Enter 3 integers which are sides of a triangle")
5  Input(a,b,c)
6  Output("Side A is", a)
7  Output("Side B is", b)
8  Output("Side C is", c)
9  If (a < b + c) AND (b < a + c) AND (c < a + b)
10    Then IsATriangle = True
11    Else IsATriangle = False
12 EndIf
13 If IsATriangle
14    Then  If (a = b) AND (b = c)
15             Then Output ("Equilateral")
16             Else  If (a≠b) AND (a≠c) AND (b≠c)
17                      Then Output ("Scalene")
18                      Else Output ("Isosceles")
19                EndIf
20          EndIf
21    Else  Output("Nota a Triangle")
22 EndIf
23 End triangle2
```

9. Derive the logic and flow graph for the decision table given

Conditions	*Rule 1*	*Rule 2*	*Rule 3*	*Rule 4*	*Rule 5*	*Rule 6*	*Rule 7*	*Rule 8*
a	T	T	T	T	F	F	F	F
b	T	T	F	F	T	T	F	F
c	T	F	T	F	T	F	T	F
a AND (b OR c)	True	True	True	False	False	False	False	False
Actions								
$y = 1$	x	x	x	—	—	—	—	—
$y = 2$	—	—	—	x	x	x	x	x

Part C

Answer **any four** the Questions. **Each** question carries **ten** marks. (4Qx10M=40M)

10. Design a decision table for the triangle problem that first checks if triangle is valid or not and then classifies as scalene, equilateral, isosceles and right angle.
11. Explain equivalence class partitioning. Explain variations of class partitioning. Derive test cases for a program that finds area of a triangle (l and b in range >=1 and <=15)
12. Derive path testing table for the given code

```
procedure avg;
1 i := 1;
1 input := 0;
1 number := 0;
1 sum := 0;
exec while 2 -val( i ) <> stop and input <=500 – 3
4 input := input + 1;
if 5 -val( i ) >= min and val ( i ) <= max – 6
7 then number := number + 1;
7 sum := sum + val( i );
8 end if;
8 i := i + 1;
9 end exec;
10 if number > 0
11 then avg := sum / number;
12 else avg := stop;
13 end if;
13 end avg;
```

13. Derive logical rules from the table given. Design a test case table based on the decisions

Conditions	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Balance OK?	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	N
Number of Checks OK?	Y	Y	Y	Y	N	N	N	N	Y	Y	Y	Y	N	N	N	N
Savings Account?	Y	Y	N	N	Y	Y	N	N	Y	Y	N	N	Y	Y	N	N
Payment Late?	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Results																
Standard Account Fee?			Y	Y												
Charge Excess Fee?					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Charge Late Fee?	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Charge No Fee?	Y	Y														