Question 1.1 (2 marks)

Which statement among the following is **true** ?
a) Software Quality Assurance is synonymous to Software Quality Control
b) Software Quality Assurance is a part of Quality Control
c) Quality Control is a part of Software Quality Assurance
d) There is no relation between Software Quality Assurance and Quality Control

Question 1.2 (2 marks)

Which statement among the following is **false** concerning why software quality is more a challenge than hardware products quality ?

a) Software products are invisible

b) **Software products are used more intensively**

c) Software development process provide less opportunities for finding defects

d) Software products are usually more complex

Question 1.3 (2 marks)

Complete the following definitions in the context of software testing:

i) A defect is *a consequence of a human error in a software artifact (documentation, code, data, ..)*

ii) A failure is *a consequence of a defect during the operation of a software system such that requirements are not met*

Question 1.4 (2 marks)

Complete the blanks in the following statement.

Software ***validation*** answers the question are we *building the right product ?*, while software ***verification*** answers the question are we *building the product right ?*

Question 1.5(2 marks)

Which of the following statements is **true** ?

a) **A software can develop resistance to a particular testing technique**

b) A program is better tested by the people who wrote it (***this is only true for white box testing***)

c) Testing can prove a software is free of defects

d) Testing can start only after some code has been written

i)

Input Conditions	***Valid ECs***	***Invalid ECc***
C	1. C.length = 3	3. C is null 4. C.length < 3 5. C.length > 3
	2. -100 <= C[0],C[1],C[2] <= 100 2.1 C[0]=C[1]=0 2.2 C[0]=0, C[1] != 0 2.3 C[0],C[1],C[2] such that D = 0 2.4 C[0],C[1],C[2] such that D < 0 2.5 C[0],C[1],C[2] such that - C[0] != 0, C[1] != 0 and - D > 0	6. C[0] < -100 7. C[0] > 100 8. C[1] < -100 9. C[1] > 100 10. C[2] < -100 11. C[2] > 100

ii)

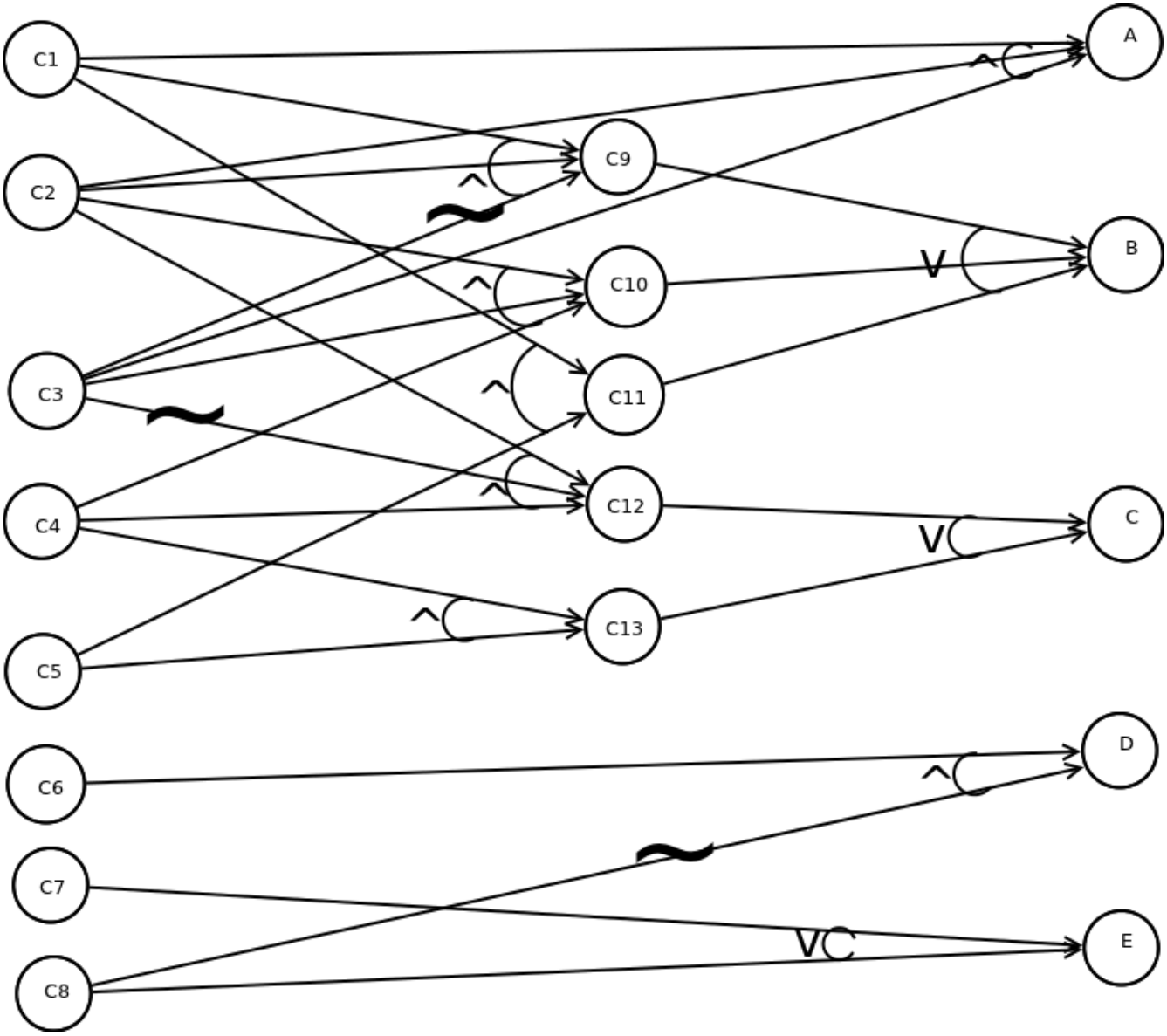
Test Case number	***Test Data***		***Equivalence Classes***
	Input	Expected Result	
1	C = {0,0,0}	returns null	1, 2.1
2	C = {0,100,100}	returns array of length 1 = {-1}	1, 2.2
3	C = {1,2,1}	returns array of length 1 = {-1}	1, 2.3
4	C = {100,-100,-100}	returns null	1, 2.4
5	C = {1, 4, 3}	returns array of length 2 = {-1, -3}	1, 2.5
6	C = null	error message	3

iii)

Assuming method ***solve()*** is defined in a class named ***QuadraticSolver***.

```
 @Test
public void testAllZero {
   double[] C = {0,0,0}
   Assert.assertNull(QuadraticSolver.solve(C));
}
```

i)



One and only one (O) constraints between C1, C4, C6, C7

One and only one (O) constraints between C2, C5, C8

ii)

A ≡ C1 ∧ C2 ∧ C3

C ≡ C12 ∨ C13

≡ (C4 ∧ C5) ∨ (C2 ∧ ¬C3 ∧ C4)

iii)

C ≡ (C4 ∧ C5) ∨ (C2 ∧ ¬C3 ∧ C4)

C1	***C2***	***C3***	***C4***	***C5***	***C6***	***C7***	***C8***	***C***
			F	T				
			T	F				
			T	T				X
	F	T	T					
	F	F	F					
	T	T	F					
	T	F	T					X