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(1)

a) Ans: the fault is in the if condition i.e,
if (x[i] <= 0)

it should be : if(x[i] < 0)

b)
ans: x must be null or empty and all other input results in the fault !

c)
ans: if the test case doesnot have zero (0) entry and it should be non-empty to satisfy this condition

d)
ans: every testcase that executes error will also result in failure. because the x value is zero(0) then after processing zero(0) state other subsequent states results in error states for any value of x

e) if a test case has zero(0) on it, it results in failure

test data = [0, -1, -2, -3, 4]
expected output = 3
actual output = 4

(2)

P_1	P_2	P_3
x	x	x
x	y	y
y	x	y
y	y	x

P_1 P_4	P_2 P_4	P_3 P_4
x x	x x	x x
x y	x y	x y
x z	x z	x z
y x	y x	y x
y y	y y	y y
y z	y z	y z

P_1	P_2	P_3	P_4
x	x	x	x
x	y	y	y
y	x	y	x
y	y	x	y
x	-	-	z
y	-	-	z
-	x	-	y
-	x	-	z
-	y	-	z
-	-	x	z
-	-	y	z

possible coverage = 3, x = 3, y = 3
" coverage = 3, y = 3, x = 2
coverage = 2, x = 2, y = 2
coverage = 2, y = 2, x = 2

(3)

a) prime paths

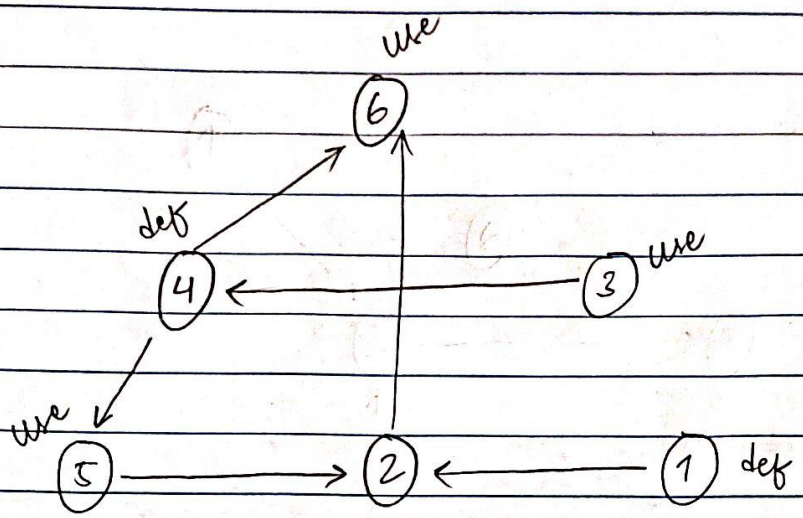
1) n0, n2, n3, n4, n1
2) n4, n1, n3, n0, n2
3) n2, n3, n0, n1
4) n2, n3, n0, n2
5) n0, n1, n3, n0
6) n0, n1, n3, n4
7) n0, n2, n3, n0
8) n3, n0, n1, n3
9) n1, n3, n0, n1
10) n1, n3, n4, n1
11) n4, n1, n3, n4
12) n3, n0, n2, n3
13) n3, n4, n1, n3

Test path

1) [n0, n2, n3, n4, n1, n3, n4]
2) [n0, n2, n3, n4, n1, n3, n0, n2, n3, n4]
3) [n0, n1, n3, n0, n1, n3, n4]
4) [n0, n1, n3, n4, n1, n3, n4]
5) [n0, n1, n3, n0, n2, n3, n4]
6) [n0, n2, n3, n0, n2, n3, n4]
7) [n0, n2, n3, n0, n1, n3, n4]

4

a



initial node = 1
final node = 6

b) dupath wrt x

test path	du-paths
t_1	[1, 2, 6]
t_2	[1, 2, 3], [4, 5], [4, 5, 2, 6]
t_3	[1, 2, 3], [4, 5], [4, 6], [4, 5, 2, 3]

c)
ans: {t2} or {t3}

d)

ans: $\{t_1, t_2, t_3\}$

e)

ans: du-paths covered

[1, 2, 6]

[1, 2, 3, 4, 6]

[1, 2, 3, 4, 5, 2, 6]

[1, 2, 3, 4, 5, 2, 3, 4, 6]