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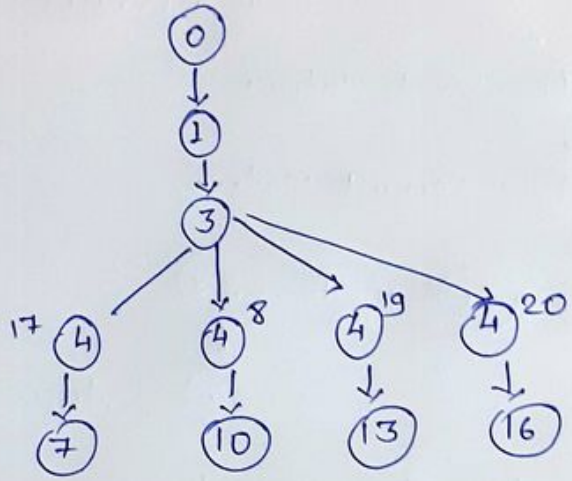
Software - Testing Assignment - 2

① Question ①

a) DD Graph



b) Cyclomatic complexity using all 4 methods

① E - n + 2 ⇒ 9 - 10 + 2 ⇒ 1

② V(G) = e - x + 2p ⇒ 9 - 10 + 2 * 1 = 1
(p = 1)

③ Not Applicable

④ Not Applicable

c) List of Independent Parts —

① 0, 1 → 3 → 4 → 7

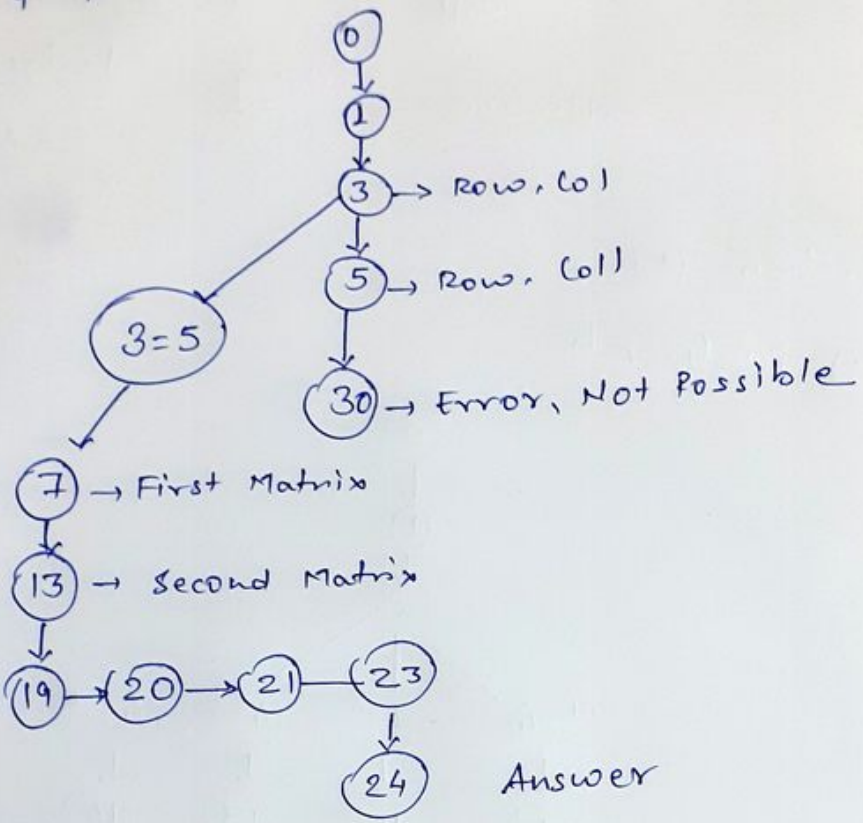
② 0 → 1 → 3 → 4 → 10

③ 0 → 1 → 3 → 4 → 13

④ 0 → 1 → 3 → 4 → 16

Question (2)

a) DD Graph



b) Cyclomatic Complexity —

(1) E - N + 2 ⇒ 11 - 12 + 2 ⇒ 1

(2) V(G) = e - n + 2p ⇒ 11 - 12 + 2 * 1 = 1

(3) V(G) = P + 1 → 1 + 1 = 2

(4) Not Applicable

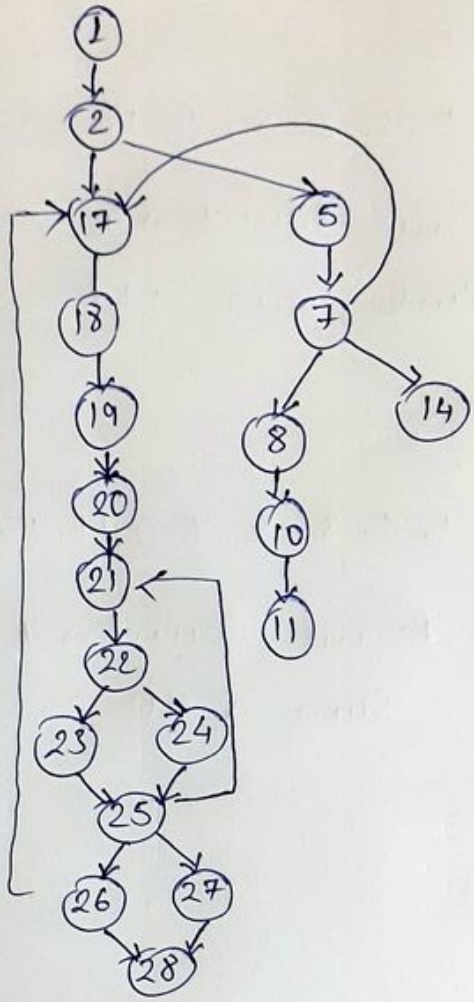
c) List of Independent Paths —

0, 1, 3, 3, 5, 5, 30

0, 1, 7, 13, 19, 20, 21, 23, 24

Question No – (3)

a) DD Graph –



b) List all independent paths —

(1) 1 → 2 → 5 → 7 → 8 → 10 → 11

(2) 1 → 2 → 5 → 7 → 14

(3) 1 → 2 → 17 → 18 → 19 → 20 → 21 → 22 → 23 → 25 → 26 → 28

(4) 1 → 2 → 17 → 18 → 19 → 20 → 21 → 22 → 24 → 25 → 26 → 28

(5) 1 → 2 → 17 → 18 → 19 → 20 → 21 → 22 → 24 → 25 → 27 → 28

(6) 1 → 2 → 17 → 18 → 19 → 20 → 21 → 22 → 23 → 25 → 27 → 28

c) Test cases

Test ①

1, 3, 2, 5, 7, 10

Prime count → 4

Prime Sum → 17

Test ②

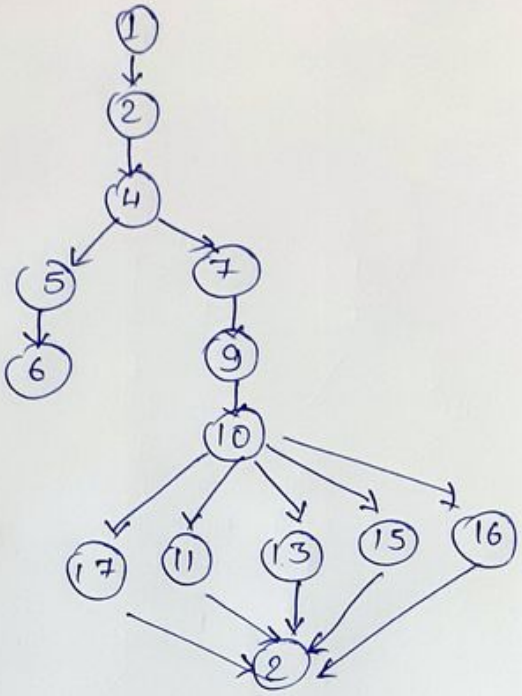
1, 2, 3, 4, 7, 9, 11, 17

Prime count ⇒ 7

Sum ⇒ 50

Question No - (4)

a) DD Graph →



b) Cyclomatic Complexity -

(1) $V(G) = e - n + 2p = 17 - 14 + 2 \times 1 = 5$

(3) $V(G) = R + 1 = 4 + 1 = 3$

(4) Regions $4 + 1 = 5$

(2) $e - n + 1 = 17 - 14 + 2 = 5$

c) List of all Independent Paths —

(1) $1 \rightarrow 2 \rightarrow 4 \rightarrow 5 \rightarrow 6$

(2) $1 \rightarrow 2 \rightarrow 4 \rightarrow 7 \rightarrow 9 \rightarrow 10 \rightarrow 11 \rightarrow 2$

(3) $1 \rightarrow 2 \rightarrow 4 \rightarrow 7 \rightarrow 9 \rightarrow 10 \rightarrow 17 \rightarrow 2$

(4) $1 \rightarrow 2 \rightarrow 4 \rightarrow 7 \rightarrow 9 \rightarrow 10 \rightarrow 15 \rightarrow 2$

(5) $1 \rightarrow 2 \rightarrow 4 \rightarrow 7 \rightarrow 9 \rightarrow 10 \rightarrow 16 \rightarrow 2$

(6) $1 \rightarrow 2 \rightarrow 4 \rightarrow 7 \rightarrow 9 \rightarrow 10 \rightarrow 13 \rightarrow 2$

d) Test Cases

① Test case (a)—

$S_1 = 95, \quad S_2 = 90, \quad S_3 = 100, \quad S_4 = 60$

$$\text{total} = \frac{345}{4} = 86.2$$

Grade A

② Test case (b)

$S_1 = 90, \quad S_2 = 40, \quad S_3 = 30, \quad S_4 = 20$

$$\text{total} = \frac{180}{4} = 45$$

Grade E

③ Test case (c)

$S_1 = 95, \quad S_2 = 90, \quad S_3 = 70, \quad S_4 = 60$

$$\text{total} = \frac{315}{4} = 78.5$$

Grade B