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Roll : 2019380141

Ans No: 1

1) ~~[illegible]~~ (D)
2) (B)
3) (D)
4) (C)
5) (B) $\{\{1,3\},\{2,4,5\}\}$
6) (C)
7) (A)
8) (C)
9) (C)
10) (B)

Ans. No: 2

(1) not

(2) 0

(3) ~~2~~ mn

(4) Reflexivity, Symmetry, Transtivity

(~~5~~)

(6) $\{(1,1), (2,1), (3,1), (4,2)\}$

(7) 120 $\quad {}^{10}C_2$

(8) ~~15~~ 1840 $\quad \binom{17+4-1}{17}$

(9). isomorphic

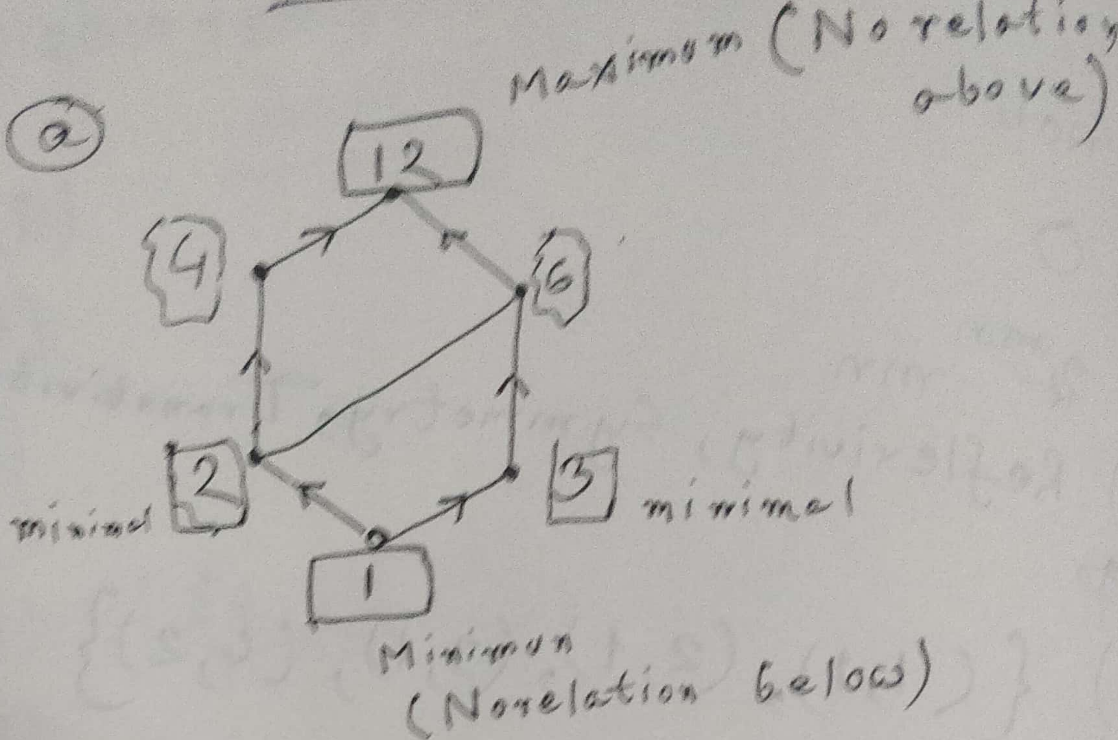
(10) has

(5)

$$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}$$

Ans No. 3(2)

(a)



(b)

The minimal elemet : 2, 3

The maximal " : 4, 6

The maximum " : 12

The minimum " : 1

The least upper bound = ϕ [Doesn't exist]

The greatest lower " = ϕ ["]

Ans No:3(1)

1	$s \rightarrow \neg t$	Premise
2	t	Premise
3	$\neg s$	1&2
4	$\neg s \rightarrow r$	Premise
5	r	Hypothelial syllogism 3 & 4
6	$p \rightarrow \neg r$	Premise
7	$\neg p$	5&6
8	$p \vee q$	Premise
q	q	T 7&8 I

Ans No: 3(3)

~~Cha~~
Homogenous recurrence, $a_n = -5a_{n-1} - 6a_{n-2}$

Characteristic

$$x^2 = -5x - 6$$

$$\Rightarrow x^2 + 5x + 6 = 0$$

$$\Rightarrow x^2 + 3x + 2x + 6 = 0$$

$$x_1 = (-3) \ \& \ x_2 = -2$$

$$a_n = C_1(-3)^n + C_2(-2)^n$$

We get $a_1 = 56$, $a_2 = 278$

$$a_n^{(h)} = a_1(-3)^n + a_2(-2)^n$$

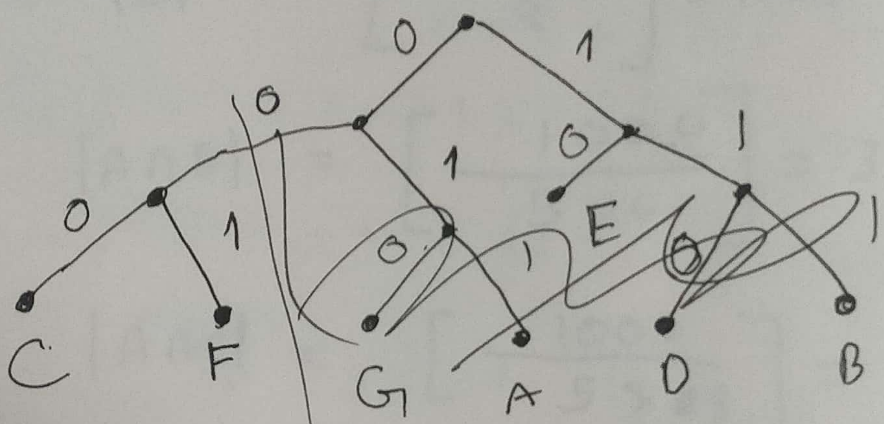
a_1 & a_2 are constants

Ans No: 3(6)

A: 0.10, B: 0.25, C: 0.05, D: 0.15

E: 0.30, F: 0.07, G: 0.08

(a)



A: ~~001~~ 011, B: 111, C: 000, D: 110,

E: 10, F: 001, G: 010

(b) Weight: Number of bits

A: 3, B: 3, C: 3, D: 3, E: 2

F: 3, G: 3

Ans No: 3(5)

(a)

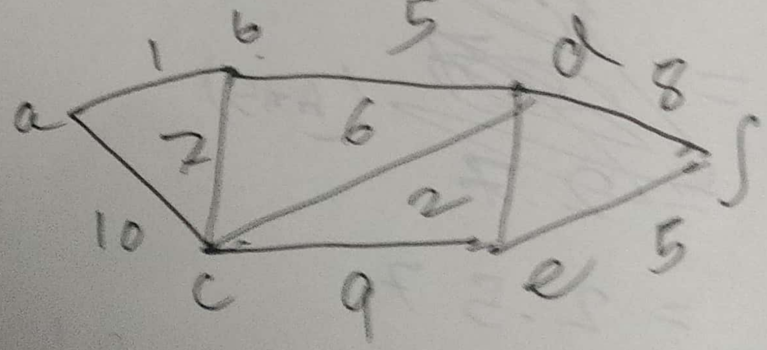
a to b : a → b, d = 1

a to c : a → b → c, d = 8

a to d : a → b → d, d = 6

a to e : a → b → d → e, d = 8

a to f : a → b → d → e → f, d = 1



Path : a b d e

(b)

Ans No: 83(5)

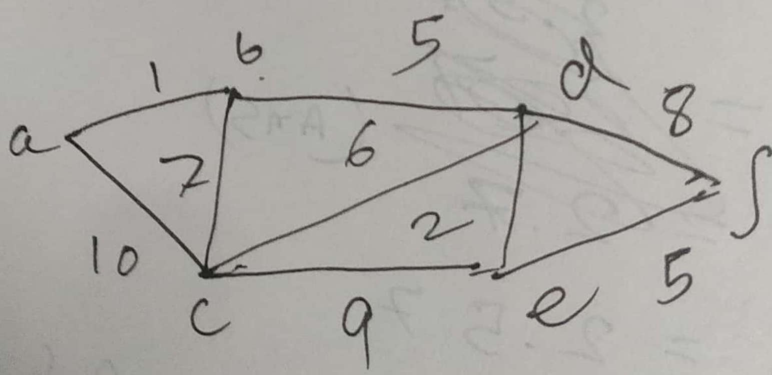
a to b : $a \to b$, $d = 1$

a to c : $a \to b \to c$, $d = 8$

a to d : $a \to b \to d$, $d = 6$

a to e : $a \to b \to d \to e$, $d = 8$

a to f : $a \to b \to d \to e \to f$, $d = 13$



Path: abdef