20103289
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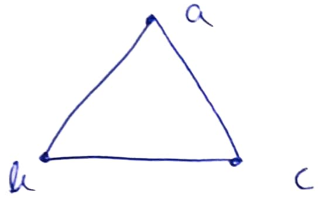
B10

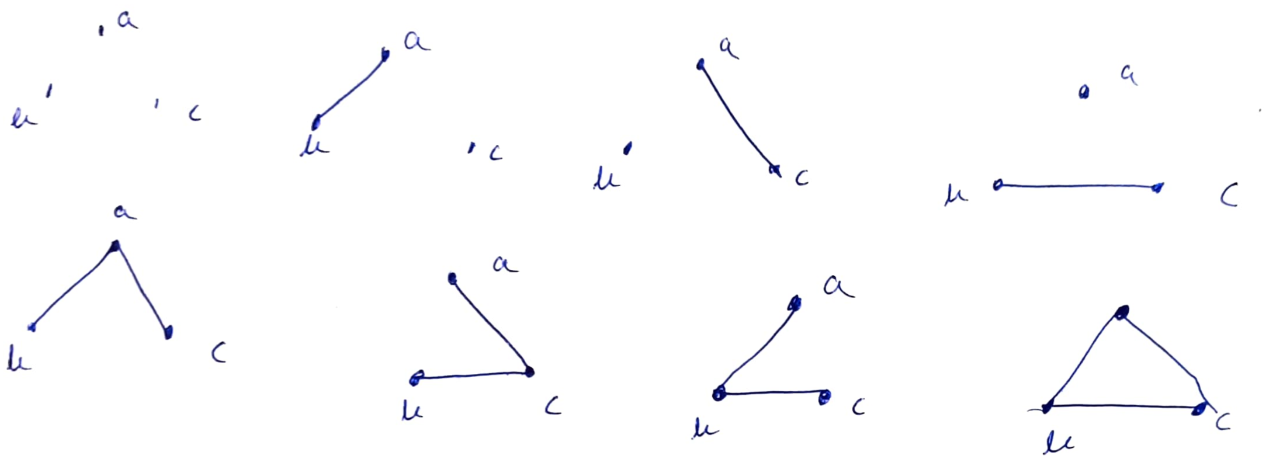
~~BS~~ TFCS Tut - 10

Sol 1:



Total no. of simple graphs : $2^{{}^nC_2}$

$= 2^{n(n-1)/2} = 2^{3(3-1)/2} = 2^3 = 8$



Sol 2: (a) Yes $\{V_1 = \{a, b, c, d\}\ V_2 = \{e\}\}$

(b) Yes $\{V_1 = (b, d, e)\ V_2 = (a, c)\}$

(c) No

(d) Yes $\{V_1 = (a, b, d, e)\ V_2 = (c, f)\}$

(e) No

Sol 3: (a) Hamiltonian path : ABCDE and Hamiltonian circuit : ABCEDA

(b) Hamiltonian path : EABCD but no Hamiltonian circuit.

(c) Neither Hamiltonian path nor circuit.

(d) Hamiltonian path : ABCDEFGHI and Hamiltonian circuit : ABCDEFGH

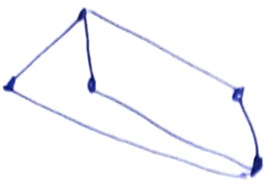
Sol 4: (a) Euler path : BCDBAD , no ~~circuit~~ Euler circuit.

(b) Euler path : BCDFBEDAB , Euler circuit BCDFBEDAB

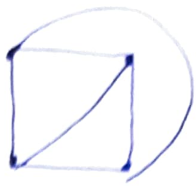
(c) No euler path or circuit.

(d) Euler path : BACEDCB   Euler circuit BACEDCB

Sol 5: (a)



(b)



(c) Non-planar

(d) Non-planar

Sol 7: (a) Yes (b) Yes

~~Sol 8: The colors need to be assigned to the animals is then the number of diff. habitats needed.~~

Sol 8: The colors need to be assigned to the animals such that no two adjacent nodes have the same color. The minimum number of colors required to color the animals is then the number of diff. habitats needed.

Sol 9:
(a) 3
(b) 2
(c) 2
(d) 3

Sol 10: C4 and C5 are the only committees that do not share a common member. Hence we req. a diff color for every committee except for these two.

So 6 − 1 = 5 meetings.