Discrete Mathematics

Graph Theory

DPP: 2

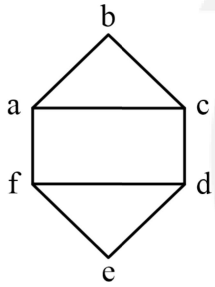
Q1 Let G is simple graph with 7 vertices and 11 edges. Then find number of edges in complement of G

Q2 In a self-complementary graph G of size 18, then find the number of vertices in the graph G?

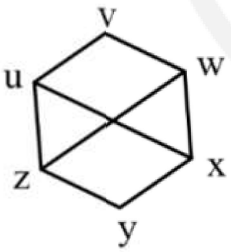
Q3 If G is a simple graph with degree sequence {5, 2, 2, 2, 2,1} then what is the number of edges in the complement G ? Also identify the degree sequence for the complement of graph G.

Q4 Which of the following options is/are correct for isomorphic graphs?

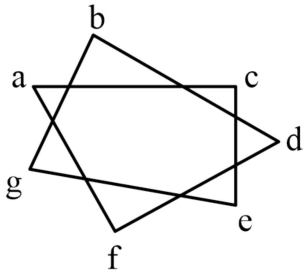
G_1 :



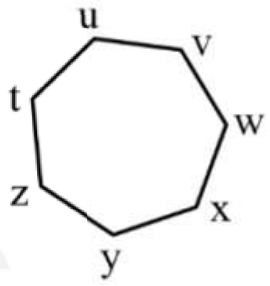
G_2 :



G_3 :



G_4 :



(A) G_1 and G_2 are isomorphic graph.
(B) G_3 and G_4 are isomorphic graph.
(C) G_1 and G_2 are not isomorphic graph.
(D) G_3 and G_4 are not isomorphic graph.

Q5 How many simple non-isomorphic trees are possible with 5-vertices?

Q6 Let G be a connected planar graph with 20 vertices each of degree 3 then the number of faces in the planar embedding of the graph is _____.

Q7 Let G be a connected planar graph with 35 regions each of degree 6. Then the number of vertices in graph G is _____.

Q8 Let G be a connected planar graph with 12 vertices and 30 edges, and degree of each region is k. Then the value of k is _____.

Q9 Minimum number of vertices necessary in a simple connected planar graph with 11 edges is

_____.

Q10 Maximum number of regions possible in a simple connected planar graph with 10 vertices is _____.

Q11 Consider a 5-regular connected planar graph with 10 vertices.

How many bounded faces are there in the planar embedding of the graph?

(A) 15 (B) 16

(C) 17 (D) 18

Answer Key

Q1	10~10
Q2	9~9
Q3	8~8
Q4	(B, C)
Q5	3~3
Q6	12~12
Q7	72~72
Q8	3~3
Q9	6~6
Q10	16~16
Q11	(B)