Quiz-III: Algorithmic Graph Theory (AGT)

1st Sem, M.Tech (CSE & CSEIS) and Research Scholar dated 25/10/2021 at 4.00 PM
Instructions: Answer all questions. Full Marks 26, Time 30 Minutes
Name and Admission No. Entry is compulsory.

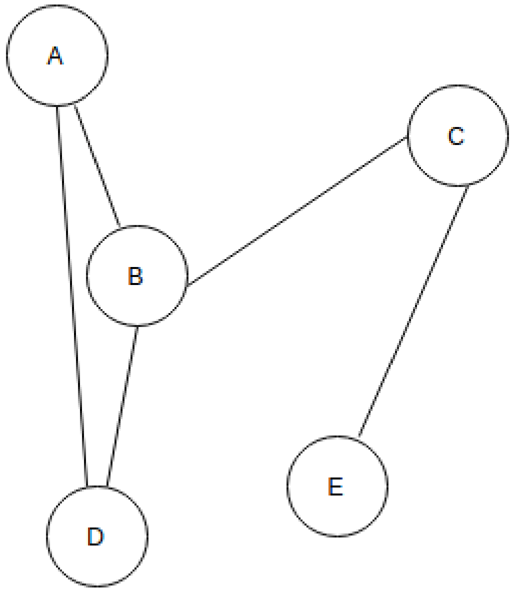
Your email will be recorded when you submit this form

* Required

Is connected K-regular graph are always vertex- transitive graph.

- False
- True

In the given graph, identify the cut vertices.



- B and E
- C and D
- A and E
- C and B

There are four students in a class namely A, B, C and D. A tells that a triangle is a bipartite graph. B tells pentagon is a bipartite graph. C tells square is a bipartite graph. D tells heptagon is a bipartite graph. Who among the following is correct?

- A
- B
- C
- D

Consider an undirected un-weighted graph G. Let a breadth-first traversal of G be done starting from a node r. Let d(r, u) and d(r, v) be the lengths of the shortest paths from r to u and v respectively in G. If u is visited before v during the breadth-first traversal, which of the following statements is correct?

- ○ d(r, u)<d(r, v)
- ○ d(r, u)>d(r, v)
- ○ d(r, u)≤d(r, v)
- ○ None of the above

Let G1 = (V, E1) and G2 = (V, E2) be connected graphs on the same vertex set V with more than two vertices. If G1∩G2 = (V, E1∩E2) is not a connected graph, then the graph G1∪G2=(V, E1∪E2)

- ○ Can't have a cut vertex
- ○ Must have a cycle
- ○ Must have a cut edge(bridge)
- ○ Has a chromatic no strictly greater than those of G1 and G2

Peterson graph is non-planner because

- ○ It's sub graph contain sub division of K5
- ○ It's sub graph contain sub division of K3,3
- ○ It's contain K5 minor
- ○ Both b and c

Cycle decomposition is possible in a graph G if

- G is regular graph
- G is complete graph
- G is Euler graph
- None of these

What will be the chromatic number for an empty graph having N vertices

- 0
- 1
- 2
- N

Which relation given below is true?

- rad (G) ≤ diam (G) ≤ 2* rad (G)
- rad (G) ≤ diam (G) ≥ 2* rad (G)
- rad (G) < diam (G) < 2* rad (G)
- all of the above

Let G be a simple graph with 20 vertices and 100 edges. The size of the minimum vertex cover of G is 8. Then, the size of the maximum independent set of G is

- 12
- 8
- Less than 8
- More than 12

A graph has 24 edges and degree of each vertex is k, then which of the following is possible number of vertices?

- 20
- 15
- 10
- 8

If G is a disconnected graph then

- C(G¯) is disconnected
- C(G¯) is connected and diam (G¯) ≤ 1
- C(G¯) is connected and diam (G¯) ≤ 2
- None of these

May be c or d

Wagner's theorem state that a graph is planner iff it has no K5 or k3,3 minor

- True
- False

True

Calculating the chromatic number of a graph is a

- P problem
- NP hard problem
- NP complete problem
- Cannot be identified as any of the given problem

Finding minimum connected dominated set is

- NP problem
- P problem
- NPC problem
- None of these

Every non – trivial connected graph contains ≥ 2 vertices that are not cut vertices.

- True
- False

I is an independent set in G, if and only if o V(G) is vertex cover V(G) – I is vertex cover of Go Both a and bo None of these

- V(G) is vertex cover
- V(G) – I is vertex cover of G
- Both a and b
- None of these

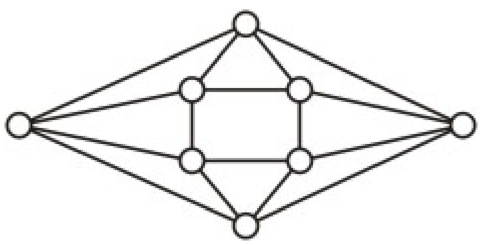
Admission No. *

Your answer

Name *

Your answer

The minimum number of colors required to color the graph is



- 2
- 3
- 4
- 5

Consider a complete graph G with 4 vertices. The graph G has ____ spanning trees

- 15
- 8
- 16
- 13

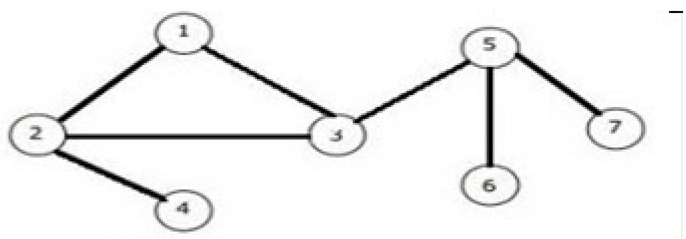
The complete graph K, has... different spanning trees?

- n^(n-2)
- n ^ n -2
- n/2
- n^2 - 2

A cycle on n vertices is isomorphic to its complement. The value of n is _____.

- 2
- 4
- 5
- 6

The number of bridges in a given graph is



- 1
- 2
- 4
- 3

If a graph have Hamiltonian path then it is possible that the graph also has Hamiltonian circuit.

- True
- False

May be True

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Clear form