Unit 6 - Week 4

Assignment 4

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-02-26, 23:59 IST.

1) Let $G = (V, E)$ be a bipartite graph. Then the size of maximum matching in G is at least *1 point*

- $\frac{|V(G)|}{2}$
- $\Delta(G) + 1$
- $\frac{|E(G)|}{\Delta(G)}$

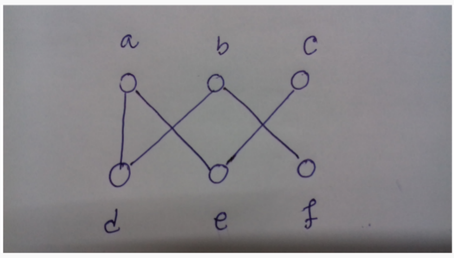
No, the answer is incorrect.
Score: 0
Accepted Answers:
$\frac{|E(G)|}{\Delta(G)}$

2) Let T be a tree with n nodes and k be the size of maximum independent set in T. Then the size of maximum matching in T is *1 point*

- $n - 1 - k$
- k
- $n - k$
- $k - 1$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$n - k$

3) Consider the bipartite graph shown below. *1 point*



Suppose the current matching $M = \{(c, e), (a, d)\}$. Does there exist an augmenting path with respect to M ?

- Yes
- No

No, the answer is incorrect.
Score: 0
Accepted Answers:
Yes

4) Consider the graph shown in Problem 3. What is the size of maximum matching in G *1 point*

- 2
- 3

No, the answer is incorrect.
Score: 0
Accepted Answers:
3

5) Consider the graph shown in Problem 3. What is the size of maximal matching in G containing (b, d). *1 point*

- 2
- 3

No, the answer is incorrect.
Score: 0
Accepted Answers:
2

6) Let $m(G)$ denote the size of maximum matching in graph G. Then every maximal matching in graph G has at least *1 point*

- $m(G) - 1$ edges
- $m(G) - 2$ edges
- $\frac{m(G)}{2}$ edges

No, the answer is incorrect.
Score: 0
Accepted Answers:
$\frac{m(G)}{2}$ *edges*

7) Let G be a graph with n nodes. The size of maximum independent set in G is always greater than equal to *1 point*

- $\frac{n}{1 + \Delta(G)}$
- $\frac{n}{\Delta(G)}$
- $\frac{n}{\Delta(G) - 1}$
- $\Delta(G) + 1$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$\frac{n}{1 + \Delta(G)}$

8) Let G be a bipartite graph without isolated vertices. Then the size of minimum edge cover in G is equal to *1 point*

- the size of minimum vertex cover in G
- the size of maximum matching in G
- the size of maximum independent set in G

No, the answer is incorrect.
Score: 0
Accepted Answers:
the size of maximum independent set in G