X

Week 9: Assignment 9

The due date for submitting this assignment has passed.

Due on 2022-09-28, 23:59 IST.

Assignment submitted on 2022-09-28, 22:26 IST

1) In a random graph with 500 nodes and edges between any two nodes with a probability of 0.27, where can one expect the peak of the degree-distribution graph? ***1 point***

- 270
- 500
- 135
- 100

Yes, the answer is correct.
Score: 1
Accepted Answers:
135

2) In a random graph with 500 nodes, if A, B & C are the number of nodes with degrees 0, 300 & 450 respectively. What is the relationship between A, B & C? ***1 point***

- A < B < C
- B < C < A
- A < C < B
- C < B < A

No, the answer is incorrect.
Score: 0
Accepted Answers:
A < C < B

3) Amit tosses 6 dices and stores the sum of the numbers he gets. If he plots the sum of the numbers on the x-axis and the frequency on the y-axis, in what range is the peak of the ***1 point***

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given distribution expected to be?

- 6 - 10
- 18 - 24
- 30 - 36
- 10 - 16

Yes, the answer is correct.
Score: 1
Accepted Answers:
18 - 24

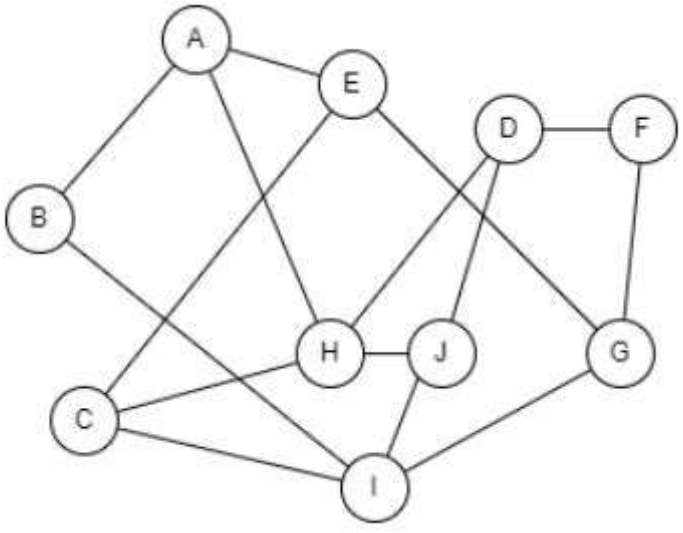
4) The power law states that the frequency (plotted along the y-axis) is inversely proportional to $k^{(a)}$ where k is the values plotted along the x-axis. Here a is preferably between - ***1 point***

- 0 & 1
- -1 & 0
- -2 & -1
- 2 & 3

Yes, the answer is correct.
Score: 1
Accepted Answers:
2 & 3

5) **Questions 5, 6 & 7 are connected.** ***1 point***

In the given graph, a new node X is introduced. What is the probability of a new node being attracted to either A or B or D, given that X makes only one new friend?



- 8/30
- 9/30
- 5/30
- 7/30

No, the answer is incorrect.
Score: 0
Accepted Answers:
8/30

6) In the above question, assume X made friends with C, D & E. Y is another new node which arrives at the next step. What is the probability that Y makes friends with C? ***1 point***

- 5/30
- 9/36
- 4/36
- 10/36

Yes, the answer is correct.
Score: 1
Accepted Answers:
4/36

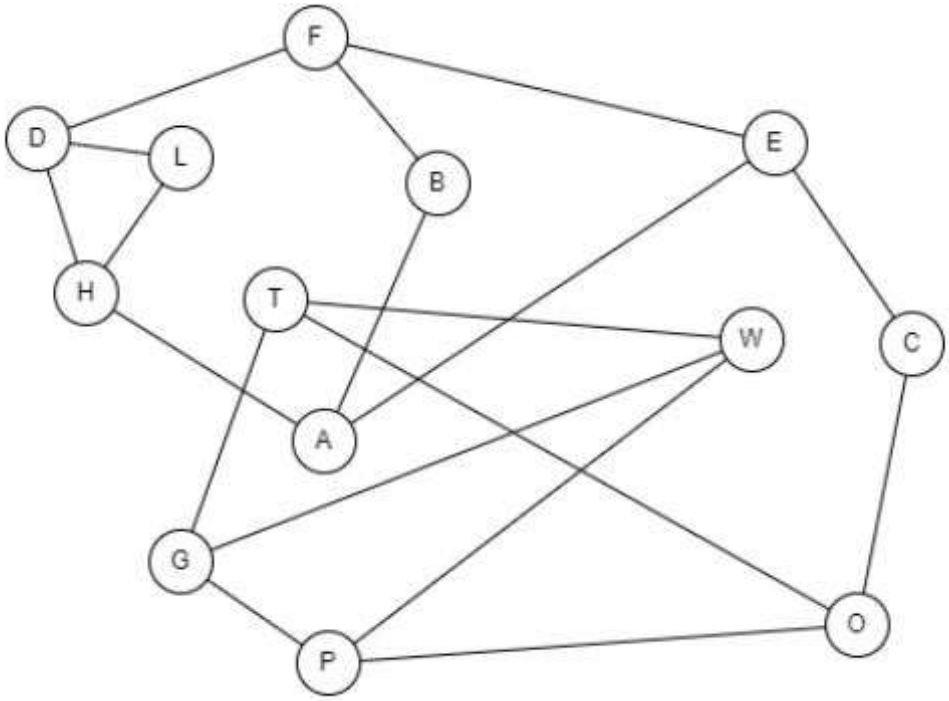
7) If in the given graph, new node Q becomes friends with B. Z is yet another new node. Z is not friends with anyone. According to the richer get richer phenomenon, what is the probability that a new incoming student W, makes friends with Z? ***1 point***

- 5/38
- 6/36
- 9/38
- 0/38

Yes, the answer is correct.
Score: 1
Accepted Answers:
0/38

8) In the given graph below, with whom should a new node Q make friends so that another new node X has an equal probability of making friends with each node present(it is given that X joins after Q has made friends)? ***1 point***

The graph is at t=0. X comes at t=1. Y comes at t=2.

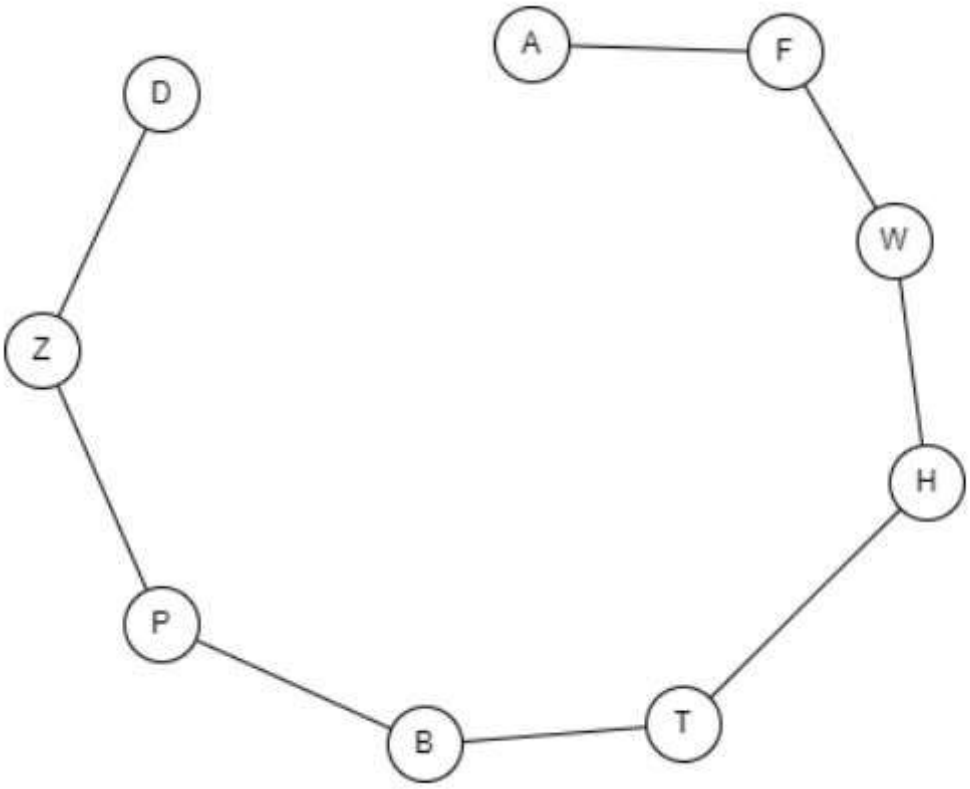


- A, P, C
- O, D, H
- B, C, L
- T, F, P

Yes, the answer is correct.
Score: 1

Accepted Answers:
B, C, L

9) In the given graph, each node represents a student and each edge represents a friendship. A new student X joins and makes 2 new friendships. With what probability does everyone have 2 friendships? (it is assumed that X makes both of its friendships simultaneously) ***1 point***



- (1/16)*(2/16)
- (1/16)*(1/16)
- (2/16)*(2/16)
- (0/16)*(1/16)

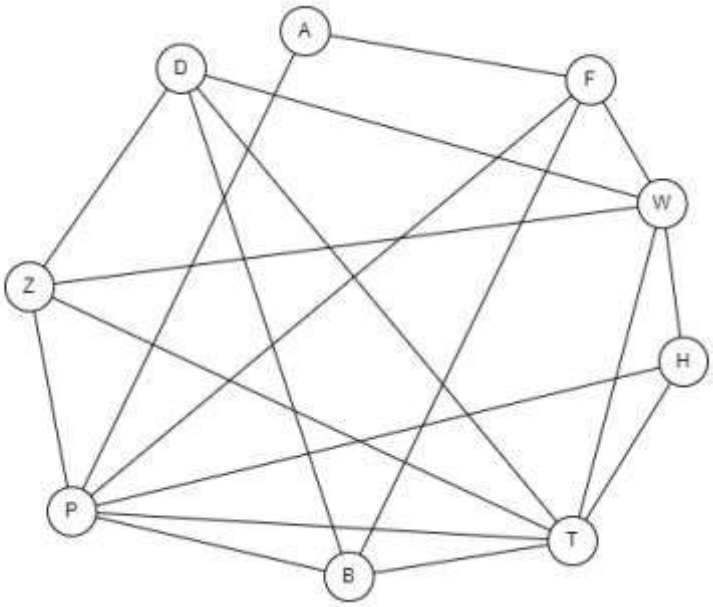
Yes, the answer is correct.
Score: 1

Accepted Answers:
(1/16)(1/16)*

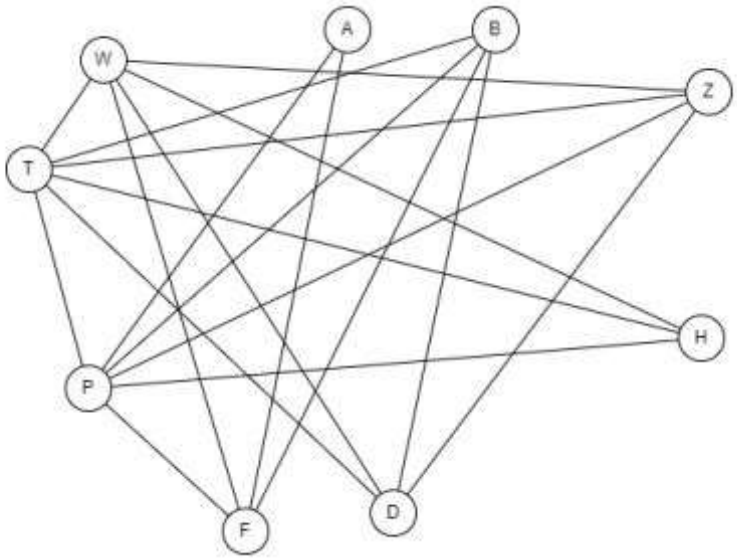
10) Given below is the probability distribution for a new node to make friends with each node. Which of the following is the correct graph? ***1 point***

A	F	W	H	T	B	P	Z	D
2/38	4/38	5/38	3/38	6/38	4/38	6/38	4/38	4/38

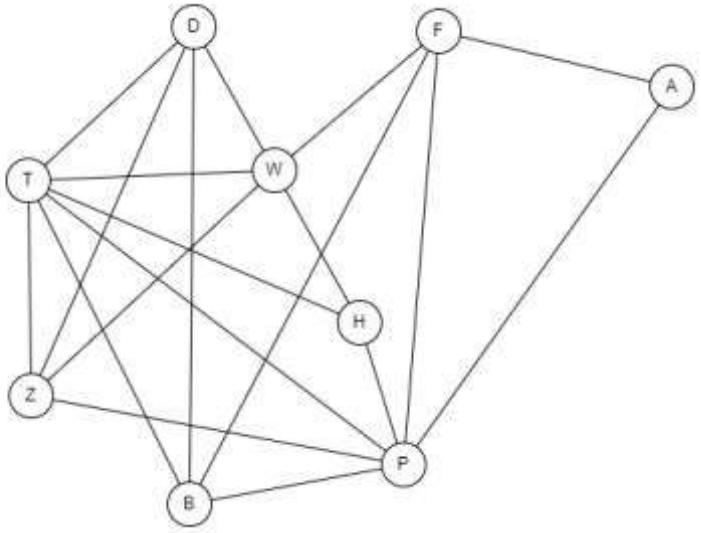
I.



II.



III.



- Only I
- Only II
- Only II & III
- Only I, II & III

Yes, the answer is correct.
Score: 1

Accepted Answers:
Only I, II & III