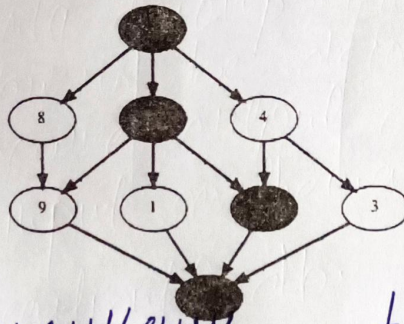# Quiz 2 /Solution.
Parallel and Distributed Computing - CS 3006

Q1: Following is the task dependency graph. Find out average degree of concurrency of the tasks.

$$\text{Avg deg of concurrency} = \frac{\text{total work}}{CPL.}$$

$$= \frac{50}{25} = \boxed{2.0}$$

Q2: Differentiate between task dependency graph and task interaction graph.

TDG	TIG.
① Shows dependency amongst tasks	① Shows interaction between ~~graphs~~ tasks.
② usually directed	② usually undirected

Q3: Discuss data decomposition. Emphasize on input-based data decomposition and why it is essential if output-based decomposition is not enough. Also, give an example of input-based data decomposition.

① When decomposition of data is done between processes to solve a problem, it is called data decomposition.

② input based data decomposition is necessary when data can not be decomposed based on output because output can not be mapped onto input mathematically.

Example transactional db.

transactions		frequency
A,B,C,D,E	A,B,C	2
B,C,D,A	B,C	3
C,A,D,B	C,A,D	2
E,C,A,D,B	C,D,E	1
A,B,C	A,D,B	2

input

A,B,C,D,E		A,B,C	2
B,C,D,A		B,C	3
C,A,D,B		C,A,D	2
E,C,A,D,B			
A,B,C			

A,B,C,D,E			
B,C,D,A			
C,A,D,B			
E,C,A,D,B		C,D,E	1
A,B,C		A,D,B	2