

Q1: Maximum degree of concurrency
for graph (a) (b) (c) & d

Ans:-

Maximum degree of concurrency
for given graphs are

- i) for graph a is 8
- ii) for graph b is 8
- iii) for graph c is 8
- iv) for graph d is 2

Q2 Critical Path Length?

Ans i) critical Path length for graph
a is 4

ii) Critical Path length for graph
b is 4

iii) Critical Path length for graph
c is 7

iv) Critical Path length for graph
d is 8

Lab Task 04 P8DC

Q3: Maximum speed achievable
speedup over one process
assuming that an arbitrary
large number of processes is available

Ans:

$$\text{Maximum speed} = \frac{\text{Total Tasks}}{\text{Critical path length}}$$

$$\rightarrow \text{Maximum speed of graph a} = \frac{15}{4} = 3.75$$

$$\rightarrow \text{Maximum speed of graph b} = \frac{15}{4} = 3.75$$

$$\rightarrow \text{Maximum speed of graph c} = \frac{24}{7} = 2$$

$$\rightarrow \text{Maximum speed of graph d} = \frac{15}{8} = 1.875$$

Q5) The minimum number of processes needed to obtain the maximum possible speedup.

Ans:

- a) Minimum Processors = 3
- b) Minimum Processors = 8
- c) Minimum Processors = 8
- d) Minimum Processors = 2

5) Maximum achievable speed up if processes are limited to 2, 4, 8, 16.

$$a) \text{ for } 2 = \frac{15}{2} = 7.5$$

$$4 = \frac{15}{4} = 3.75$$

$$8 = \frac{15}{8} = 1.75$$

$$b) \text{ for } 2 = \frac{15}{2} = 7.5$$

$$4 = \frac{15}{4} = 3.5$$

$$8 = \frac{15}{8} = 1.75$$

c) for $2 = \frac{14}{2} = 7$

$$4 = \frac{14}{4} = 3.5$$

$$8 = \frac{14}{8} = 1.75$$

d) for $2 = \frac{15}{2} = 7.5$

$$4 = \frac{15}{4} = 3.75$$

$$8 = \frac{15}{8} = 1.875$$