Frequently Asked Questions

1. What is a Critical Path?
   Answer:
   Critical path is the longest path through the project network; the activities on the path are the critical activities therefore any delay in their completion must be avoided to prevent delay in project completion.

2. What is the objective of critical path analysis?
   Answer:
   The objective of critical path analysis is to estimate the total project duration and to assign starting and finishing times to all activities involved in the project.

3. How does the critical path analysis help?
   Answer:
   The critical path analysis helps to check the actual progress against the schedule duration of the project.

4. How is the expected duration of an activity computed?
   Answer:
   The duration of individual activities may be uniquely determined (in case of CPM) or may involve the three time estimates (in case of PERT), out of which the expected duration of an activity is computed.

5. What factors are to be known to prepare the project scheduling?
   Answer:
   The following factors should be known in order to prepare the project scheduling.
   1. Total completion time of the project
   2. Earlier and latest start time of each activity
   3. Critical activities and critical path
   4. Float for each activity, which is the amount of time by which the completion of a non-critical activity can be delayed, without delaying the total project completion time

6. How many events are there in a network diagram?
   Answer:
   In a network diagram there should only be one initial event and one end event. The other events are numbered consecutively with integer 1, 2, ….,n, such that I is less than j for any two events I and j connected by an activity which starts at I and finishes at j.

7. How do we calculate the earliest occurrence time and the latest allowable time?
   Answer:
   For calculating the earliest occurrence and latest allowable times of events the following two methods namely forward pass method and backward pass method are used.

8. What do you understand by forward pass method?
   Answer:

Forward pass method (for earliest event time): In this method, calculations begin from the initial event 1, proceed through the events in an increasing order of event numbers and end at the final event, say N.

9. What do you understand by backward pass method?
   Answer:
   Backward Pass Method (for latest allowable Event Time):
   In this method calculations begin from the final event N. Proceed through the events in the decreasing order of event numbers and end at the initial event 1.

10. What is a float or free time?
    Answer:
    The float (slack) or free time is the length of time in which a non-critical activity and/or an event can be delayed or extended without delaying the total project completion time.

11. What is a slack of an event?
    Answer:
    Slack of an Event: The slack(s) also called float of an event is the difference between its latest occurrence time (L_i) and its earliest occurrence time (E_i). That is: Event float is equal to L_i minus E_i. It is a measure of how long an event can be delayed without increasing the project completion time.

12. When an event is called a critical event?
    Answer:
    An event is called a critical event when the latest time is equal to the earliest time.

13. What is a slack of an activity?
    Answer:
    Slack of an activity: It is the amount of time that an activity can be delayed without delaying project completion; it is calculated as the difference between the latest finish time and the earliest finish time for the activity.

14. What is the length of the critical path?
    Answer:
    The length of the critical path is the sum of the individual times of all the critical activities lying on it and defines the longest time to complete the project.

15. Why is it important to find the critical path?
    Answer:
    Finding the critical path is important for directing the decision maker's attention because delay in any one of these activities will increase the project completion time.