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Project Management

Module #5 Assignment

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1. **Describe three advantages of using activity networks for project scheduling.**

   According to the text, an activity network illustrates the interdependence of all tasks and work packages. A network helps with master scheduling of organizational resources because it shows times when various personnel must be fully committed to project activities. Networks determine when you expect projects to be completed. A network demonstrates which activities that need to be highly coordinated to ensure the smooth development of the project (317).

2. **Define the critical path in a project. Why is it important to understand what it is and what affects it?**

   The critical path is a path though the project network with the longest duration. They help measure the amount of time allotted towards a specific project. It is important to understand what a critical path is to help a project manager become more organized and efficient in their work. In addition, having knowledge of what affects the critical path will allow the project manager to prepare for any potential harm that may disrupt the project's successful completion.

3. **Define the Critical Path Method (CPM). Both chapters might assist with this question.**

   The Critical Path Method (CPM) is a network analysis technique used to determine the amount of scheduling flexibility on various logical paths in the project scheduling network, and to determine the minimum total project duration. The CPM allows project managers to predict when they believe the earliest time for a project to be completed, and the latest time for its completion as well. The CPM also factors in all the available resources that are needed to complete the project. Finally, a CPM also factors in the steps that are required towards a project's completion.

4. **Define Program Evaluation and Review Technique (PERT). Both chapters might assist with this question.**

   The text states that the Program Evaluation and Review Technique (PERT) was developed in the late 1950's to manage the Polaris missile program. PERT is an activity network designed to ensure projects can be scheduled as efficiently as possible. PERT is an event and probability-based network analysis system used in projects where activities and their durations are difficult to define. Where a CPM is more deterministic, a PERT is not. This means that it applies to the extent whenever the scheduled time to complete a project is uncertain.

5. **The two most common methods for constructing activity networks are Activity-on-Arrow (AOA) and Activity-on-Node (AON). Briefly compare and contrast the two. Both chapters might assist with this question.**

As the text describes, the arrow in the AOA method represents the task, activity, and the potential to start the next. In contrast, the node in the AON methodology represents an activity and the path arrows demonstrate the logical sequencing from node to node through the network. Both are methods that help us analyze the tasks pertaining to the completion of projects; however, each of them has different methods regarding the time they will take to get it done.

6. The text describes four methods for reducing the critical path. Describe two of these.

   Two methods for reducing the critical path are (1) eliminate tasks on the critical path, (2) overlap sequential tasks. The former deals with tasks that have the potential of being eliminated to help shorten the time invested towards a project's completion. While the latter addresses the implementation of processes that occur simultaneous to the performance of certain tasks. What this means is that there may be operations that are scheduled to be complete on a project site, however, instead of them being completed sequentially in the order of their previously listed schedule, a project manager may overlay tasks as points to examine where members are in terms of their completion of the overall project.

7. **What is a Gantt chart? Describe two benefits of using them for project management.**

   A Gantt chart establishes a time-phased network that links project activities to a project schedule baseline. The text goes on to state that a Gantt chart is a project tracking tool used to assess the difference between planned and actual performance. Gantt charts establish baseline calendar dates as to when projects are slated to be completed. Two benefits of using Gantt charts are that (1) they are easy to read and comprehend, and (2) they allow for updating and project control.

8. **What do we mean by 'crashing a project'? What are two reasons for crashing a project?**

   The process of accelerating a project is known as crashing (359). When project managers crash a project, they are seeking to expedite the completion of a project. If an initial schedule to complete a project is too aggressive, then project managers may crash a project. Also, if a project has slipped behind schedule, then this is a valid reason to crash a project.

9. **The text describes six techniques for crashing a project/accelerating it. Describe two of them.**

   Two of the six techniques for crashing a project/accelerating it are (1) Improving the productivity of existing project resources, and (2) using overtime. The former deals with being able to utilize whatever available resources are at a project manager's disposal and

maximizing their potential to the project benefit. The latter has to do with accelerating projects by having members work longer hours. The hope is that by doing so, this will speed up the process of the project's completion.