**Gabriel Yeager**

**SYSE 5110**

**HW1**

**p 98: 1, 6, 14, 15, 21**

1. In accomplishing a needs analysis in response to a given deficiency, what type of information would you include? Describe the process that you would use in developing the necessary information.

The information I would include in the needs analysis would be the customer requirements described as functions or what the must the system do. The information would include: what is functionally required of the system, the functions that the system must perform, the primary functions, the secondary functions, what must be done to eliminate the deficiency, when it has to be accomplished, where it has to be accomplished, and how many times it must be accomplished. The process I would use in developing this information would utilize a team including the customer, the prime producer, and primary suppliers. I would emphasize that effective communications must be continued between everyone participating in the process. The customer must be able to detail their requirements and give feedback to the team during this analysis so that it can be completed effectively and on schedule.

6. Why is it important to define specific mission scenarios (or operational profiles) within the context of the system operational requirements?

It is important to define specific mission scenarios because it is necessary to ensure that the mission or alternate missions are considered early in the system life cycle where they have the most impact on design. If these mission scenarios are not considered until later in the design process it can increase the expense of development or schedule delays because the efforts could be wasted on designing the wrong system. Defining the mission should include the development of one or several operational profiles that include what the system is to accomplish, how it will accomplish its objectives, and how the operating conditions will change. These mission scenarios lead to the definition of the system operational requirements. pg61

14. In developing the maintenance concept, it is essential that all levels of maintenance be considered on an integrated basis. Why?

When developing a maintenance concept, all levels of maintenance must be considered on an integrated basis because an entire network will exist to support the operation of the system which must be planned and designed. The system’s ability to perform the mission objectives relies on this support infrastructure. To ensure the system design will meet requirements, the levels of maintenance should be considered. This includes where the maintenance is to be performed, the frequency, the complexity of the maintenance, the skill-level of the personnel, whether a special facility is needed, and supply chain considerations. If a frequent maintenance item (e.g. oil change every 500 hours of operation) can only be performed at the manufacturing site by highly skilled personnel, then it is likely that the maintenance concept is lacking or the design needs to be changed because it interferes with efficient operation of the system. Pg76

15. Why is the development of technical performance measures (TPMs) important?

Influence system design process to incorporate the right attributs to produce a system theat will meet customer requirements. Pg 82

21. What is the purpose of allocation? To what depth in the system hierarchical structure should allocation be accomplished? How does it impact system design (if at all)? How can allocation be applied for a SOS configuration (if at all)?