McGee Carpet and Trim installs carpets in commercial offices.  Andrea McGee has been very concerned with the amount of time it took to complete several recent jobs.  Some of her workers are very unreliable.  A list of activities and their optimistic completion time, the most likely completion time, and the pessimistic completion time (all in days) for a new contract are provided in a given table.  Following are the activities that are required to install the carpets in the offices: **Activity 1** (Measure office room dimensions), **Activity 2** (Estimate cost), **Activity 3** (Material Requisition), **Activity 4** (Workforce Requisition), **Activity 5** (Special Tool Requisition), **Activity 6** (Installation), **Activity 7** (Inspection and customer acceptance).
 **Activity 2** starts immediately after **Activity 1. Activity 3**, **Activity 4,** and **Activity 5** start concurrently after **Activity 2. Activity 6** does not start until after **Activity 3**, **Activity 4,** and **Activity 5** are completed. The carpet installation project is complete after **Activity 7** is completed. If **OT** = Optimistic Time, **MT** = Most Likely Time, and **PT** = Pessimistic Time, use Program Evaluation Review Estimate (PERT) to compute the statistical time for each activity in the table shown below.

|  |  |  |  |
| --- | --- | --- | --- |
| **Activities** | **OT** | **MT** | **PT** |
| Activity 1 | 4 | 6 | 14 |
| Activity 2 | 5 | 12 | 16 |
| Activity 3 | 7 | 15 | 23 |
| Activity 4 | 13 | 16 | 28 |
| Activity 5 | 17 | 20 | 35 |
| Activity 6 | 20 | 32 | 50 |
| Activity 7 | 5 | 6 | 13 |

Also, (a) Determine the expected completion time and the variance for each activity (b) Determine the total project completion time and the critical path for the project.  (c) Determine Early Start (ES), Early Finish (EF), Late Start (LS), and slack for each activity.  **What is the probability that McGee Carpet and Trim will finish the project in 40 days or less?**

* **Define project management and the necessary requirements.**
* **Analyze implications of changes in project scheduling.**
* **Evaluate application of project management techniques in terms of the firm's business operational goals and requirements.**