The project of building a backyard swimming pool consists of eight major activities and has to be completed within 19 weeks. The activities and related data are given in the following table:

|  |  |  |
| --- | --- | --- |
| Activity | Immediate predecessor | Activity time (weeks) |
| A | - | 3 |
| B | - | 6 |
| C | A | 2 |
| D | B,C | 5 |
| E | D | 4 |
| F | E | 3 |
| G | B,C | 9 |
| H | F,G | 3 |

1. Draw a network diagram for this problem.
2. Determine the critical path and the expected project completion time.
3. Assume the project variance is 4 weeks2.
4. What is the probability that all the activities are completed within 19 weeks?

ii. When is the due date if there is a 90% of completing all the activities?