**College of Arts & Science**

**Computer Science Department**

**1st Semester 2019-2020**

**Assignment 3**

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| **Course Code** | **Course name** | **Assignment** |
| CSC421 | Software engineering II | Problems and points to be ponder  10 marks (b1) |
| **Q1: Given the activities whose sequence is described by the following table:**   |  |  |  |  | | --- | --- | --- | --- | | Activity letter | Activity description | Immediate predecessor | Activity  Time | | A | Define software project objectives, budget, due date and possible staff | --- | 3 | | B | Inventory new and old software interface and features | --- | 5 | | C | Assemble teams and allocate work | A. B | 2 | | D | Design and develop code from old to new database | C | 6 | | E | Design and develop code for PC network | C | 5 | | F | Test and debug pc network code | E | 3 | | G | Design and develop code for off-site sales force | C | 4 | | H | New complete system test and debug | D, G, F | 3 | | I | Train PC system and database operators | D, F | 4 | | J | Train off site sales force | H | 2 | | K | Two-week beta test of new system with legacy backup system | I, J | 2 |  1. What is the slack time for activity D? 2. Which activities are on the critical path? 3. What is the project duration? 4. Draw Gantt and pert Diagrams using MS-Project ( or any available tool)?   **Q2: Given the activities whose sequence is described by the following table:**   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | ACTIVITY | ACTIVITY TIME | Immediate predecessor(s) | EARLIEST START | EARLIEST FINISH | LATEST START | LATEST FINISH | SLACK | | A | 2 |  |  |  |  |  |  | | B | 1 | A |  |  |  |  |  | | C | 3 | A |  |  |  |  |  | | D | 7 | B |  |  |  |  |  | | E | 3 | B, C |  |  |  |  |  | | F |  | C |  |  |  |  |  | | G | 4 | D, E, F |  |  |  |  |  |   1) what is the slack time for activity D?  2) what is the earliest finish time for activity A?  3) what is the latest start time for activity E?  4) what is the activity time for activity F?  5) Which one of the following is the critical path?  6) what is the project duration?    **Q3: The following figure is to be used as data for problems a-e below.**  Start  A  T=3  B  T=5  D  T=4  C  T=6  F  T=4  E  T=5  G  T=6  H  T=7  Start   1. what is the critical path? 2. what is the project duration? 3. assume that completion of A is delayed by two days. What other activities are impacted? 4. assume that completion of B is delayed by two days. What happens to the project? 5. Draw Gantt and pert Diagrams using MS-Project (or any available tool)?   **Q4: Given the activities whose sequence is described by the following table**   |  |  |  | | --- | --- | --- | | Activity | Immediate predecessor(s) | Time(days) | | A |  | 5 | | B | A | 2 | | C | A | 4 | | D | B | 5 | | E | B | 5 | | F | C | 5 | | G | E, F | 2 | | H | D | 3 | | I | G, H | 5 |  1. Draw the appropriate activity-on-arrow (AOA) network diagram? 2. Which activities are on the critical path? 3. What is the length of the critical path?   A1:   1. Slack time for activity D is **2**. 2. Activities on the critical path are: **B C E F H J K.** 3. Project duration is **22.** 4. Gantt and pert Diagrams using smartdraw.     A close up of a map  Description automatically generated  A2:   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | ACTIVITY | ACTIVITY TIME | Immediate predecessor(s) | EARLIEST START | EARLIEST FINISH | LATEST START | LATEST FINISH | SLACK | | A | 2 |  | **0** | **2** | **0** | **2** | **0** | | B | 1 | A | **2** | **3** | **2** | **3** | **0** | | C | 3 | A | **2** | **5** | **3** | **6** | **1** | | D | 7 | B | **3** | **10** | **3** | **10** | **0** | | E | 3 | B, C | **5** | **8** | **7** | **10** | **2** | | F | **4** | C | **5** | **9** | **6** | **10** | **1** | | G | 4 | D, E, F | **10** | **14** | **10** | **14** | **0** |  1. Slack time for activity D is **0**. 2. The earliest finish time for activity A is **2**. 3. The latest start time for activity E is **7**. 4. The activity time for activity F is **4** (Activity time for F was found using Mean Formula).        1. The following is the critical path: **A B D G**. 2. The project duration is **14**.   A3:   1. The critical path is: **B D E F H**. 2. The project duration is: **25**. 3. Assuming that completion of A is delayed by two days. **The only activity impacted is activity C**. 4. Assuming that completion of B is delayed by two days. **The whole project will be delayed by two days**. 5. Gantt and Pert Diagrams using smartdraw.   A picture containing screenshot, wall  Description automatically generated    A4:   1. Activity-On-Arrow (AOA) network diagram     I  5  H  3  G  2  D  5  E  5  F  5  C  4  A  5  B  2   1. Activities on the critical path are: **A C F G I**. 2. Length of the critical path is **21**. | | |