**Question No. 2 (25 points):**

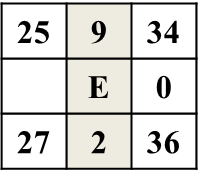
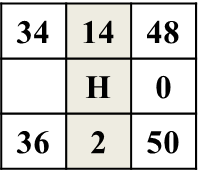
1. How many weeks are needed for the following project to be completed using bar chart technique (15 points)?
2. Determine the critical path(s) (5 points)?
3. Without redrawing, what is going to happen to this project if activity B duration prolonged by 3 weeks (5 points)?

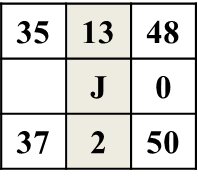
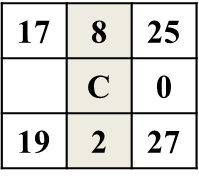
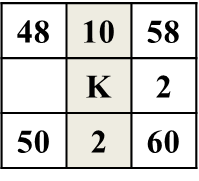
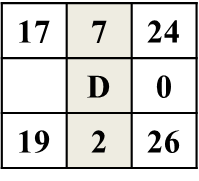
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 1 point for each activity total (10 points) |  |  |  |  |  |  |
| A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| B |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| D |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| E |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| I |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| J |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

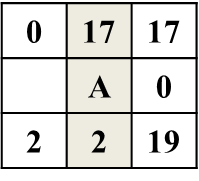
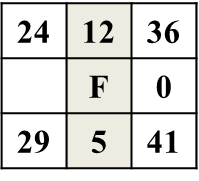
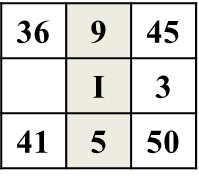
1. 24 weeks are needed for this project to be completed (5 points)
2. A-C-E-G-J (5 points)
3. Project will delay by 1 week also critical path will change to include activity B instead of activity c so the new project duration is 25 weeks and new critical path is A-B-E-G-J ( 5 points)

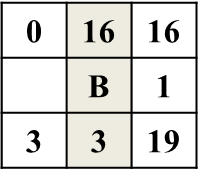
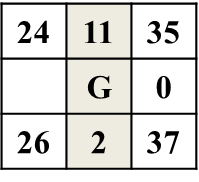
**Question 3(25 points):** Critical path(s): A-C-E-H-k and A-D-G-J-k

|  |  |  |
| --- | --- | --- |
| **ES** | **D** | **EF** |
|  | **Act** | **FF** |
| **LS** | **TF** | **LF** |





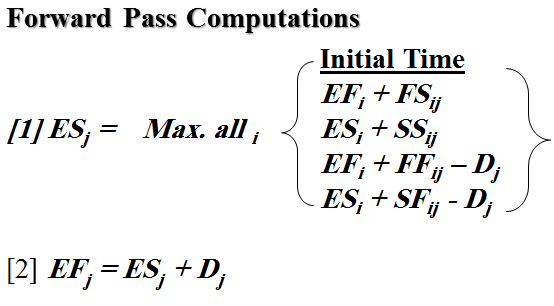
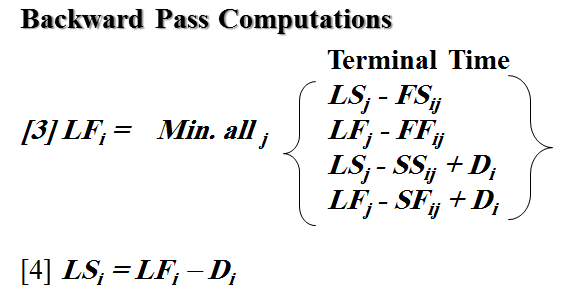




**Question 4(25 points):**

For the given precedence diagram, complete the forward and backward pass calculations (ES, EF, LS, LF, TF, and FF) and indicate the critical path(s). Assume that the project starts at T=0 and no splitting on activities is allowed. Also assume that the project latest allowable completion time (project duration) is scheduled for 26 working days.

|  |  |  |
| --- | --- | --- |
| **ES** | **D** | **EF** |
|  | **Act** | **FF** |
| **LS** | **TF** | **LF** |

**** ****

**SS 5**

18

**2**

20

**F**

6

24

6

26

13

**6**

19

**D**

0

13

0

19

3

**4**

7

**B**

6

9

6

13

**FS 4**

**FS 4**

23

**3**

26

**G**

0

23

0

26

9

**4**

13

**E**

10

19

10

23

0

**9**

9

**C**

0

0

0

9

0

**5**

5

**A**

0

0

5

**ZZ 3 , 1 **

26

**0**

26

**Finish**

26

26

**FF4**