Solutions Manual

# Chapter 3: Project Management

1.0 Graduation Party

1a.

1.1 Guest

1.2 Food

1.3 Decoration

1.1.3 Guest Seating

1.1.1 Guest List

1.1.2 Guest Invite

1.3.1 Decoration List

1.3.4 Decoration Tear Down

1.3.3 Decoration Set Up

1.3.2 Decoration Purchase

1.2.3 Food Preparation

1.2.2 Food Purchase

1.2.1 Food List

1b.

1.0 Engagement Reception

1.2 Catering

1.3 Decoration

1.1.1 Guest List

1.2.1 Caterer Selection

1.1.3 Guest Seating

1.1.2 Guest Invite

1.3.3 Decoration Set Up

1.2.3 Catering Set Up

1.3.2 Decoration Purchase

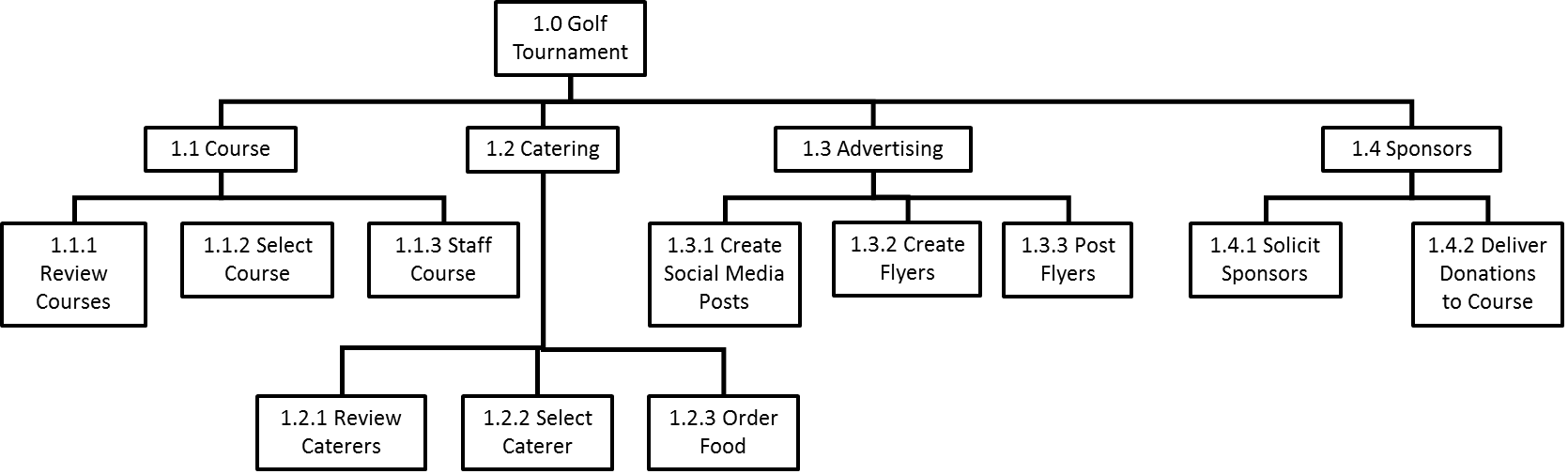
1.2.2 Caterer Selection

1.3.1 Decoration List

1.3.4 Decoration Tear Down

1.1 Guest

1c.



1d.

1.0 Campus Election

1.2 Promotion

1.3 Delivery

1.1.1 Officer List

1.3.3 Execution

1.2.3 Audience

1.3.2 Rehearse

1.2.2 Method

1.3.1 Planning

1.3.4 Evaluation

1.1 Officers

1.1.3 Officer Meeting

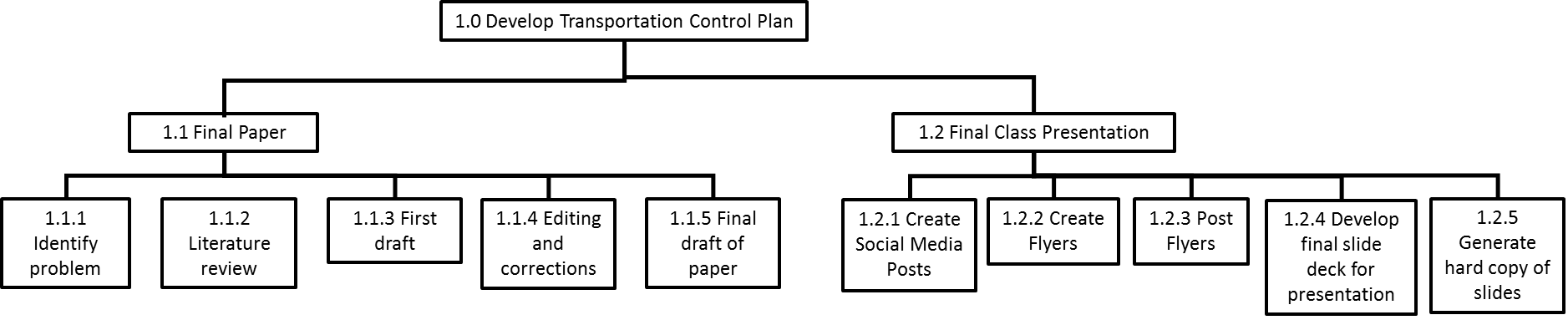
1.1.2 Officer Invite

1.2.1 Theme & Message

Cognitive Domain: Application

Difficulty Level: Hard

2.



1.2.1 Identify visual

1.2.3 Review slides

1.2.2 Develop slides

Cognitive Domain: Application

Difficulty Level: Hard

3. Answers will vary.

|  |  |
| --- | --- |
| ***#*** | ***Activity*** |
| 1 | Establish monthly housing budget |
| 2 | Decide necessary amenities |
| 3 | Screen potential neighborhoods |
| 4 | Make appointments to tour listings |
| 5 | Begin accumulating boxes |
| 6 | Sign lease/close |
| 7 | Provide notice to current landlord/list house |
| 8 | Pack & move |

Cognitive Domain: Application

Difficulty Level: Hard

4. Answers will vary, but five potential risks are 1) lack of technical expertise; 2) competing priorities result in insufficient time to make the conversion; 3) insufficient hardware/bandwidth for hosting the newspaper; 4) lack of funds in the short term to make the conversion; and 5) failure of the newspaper-reading population to accept a digital version. Risks may be accepted, minimized, shared, transferred, or documented. The digital-move risk could be minimized by ensuring that the computer and software engineering students have the technical skills to manage this web presence. The risk could be shared with another entity on campus that also needs server space and bandwidth and is willing to invest in the necessary hardware. The risk might be accepted by using ad space in the existing print medium, notifying readers of the change to a digital format 12 weeks hence.

Cognitive Domain: Analysis

Difficulty Level: Medium

5.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | *Consequences* | | |
|  |  | *Low* | *Medium* | *High* |
| Likelihood | High |  |  | Competitor first to market |
| Medium |  |  | Technical failure |
| Low |  | Budget cut | Loss of lead programmer |

Answers will vary for strategies to mitigate each risk. The team might accept or document the risk of a budget cut and a competitor being first to market or minimize the technical failure and loss of lead programmer risks by investing in sufficient hardware and doing a salary analysis of the market.

Cognitive Domain: Analysis

Difficulty Level: Medium

6. 

Cognitive Domain: Knowledge

Difficulty Level: Medium

7. 

Cognitive Domain: Knowledge

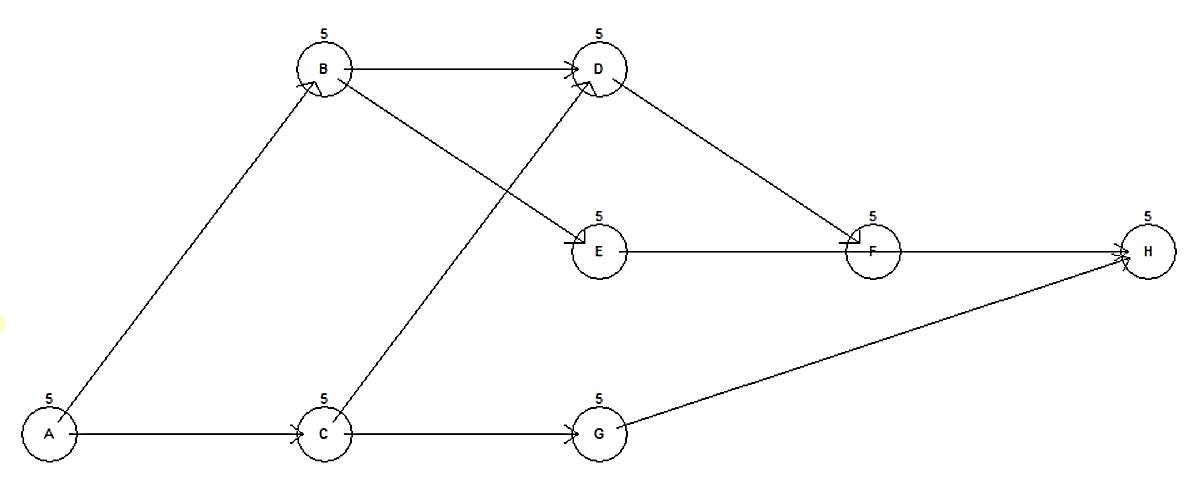
Difficulty Level: Medium

8. There is no limit to the duration of an activity while there is a lower bound on how quickly things can be accomplished. Providing a high estimate of the pessimistic duration is a way of accepting the risk associated with working with suppliers and vendors external to the organization.

Cognitive Domain: Application

Difficulty Level: Medium

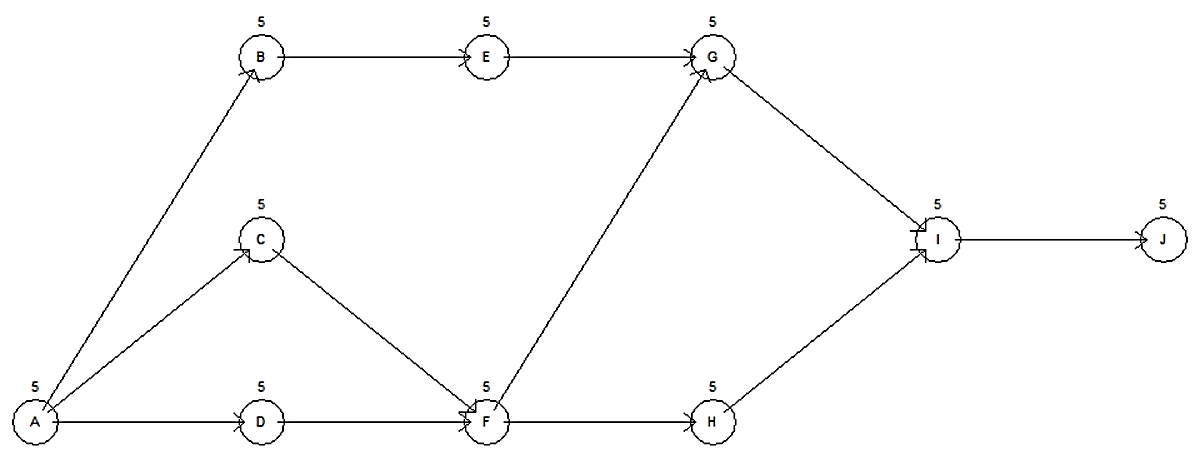
9.



Cognitive Domain: Knowledge

Difficulty Level: Easy

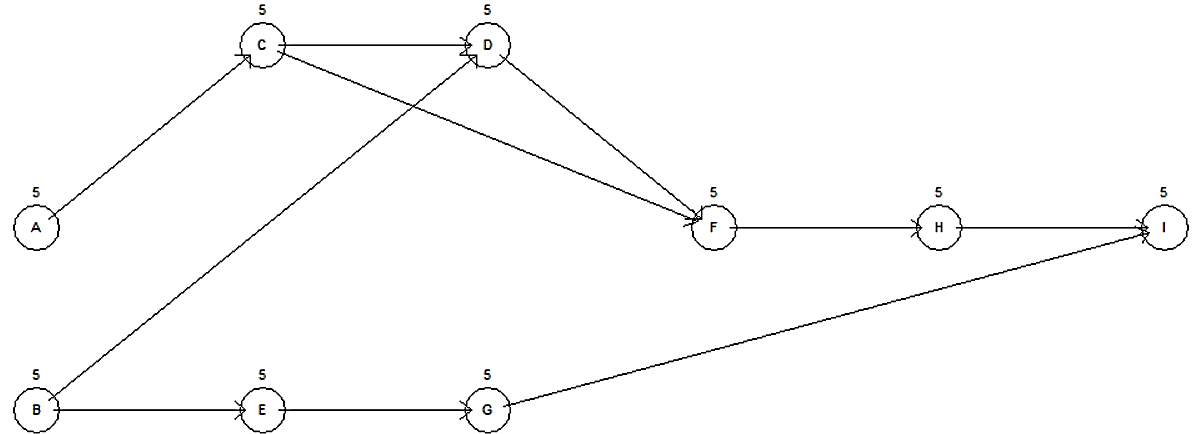
10.



Cognitive Domain: Knowledge

Difficulty Level: Easy

11.



Cognitive Domain: Knowledge

Difficulty Level: Easy

12. Activities B and C must both be completed before Activity D can begin. Even though Activity C is done at Time 8, D cannot start then because Activity B is not completed until Time 12.

Cognitive Domain: Knowledge

Difficulty Level: Easy

13a. The project duration is 19; early start of D is 12 plus the duration of 7.

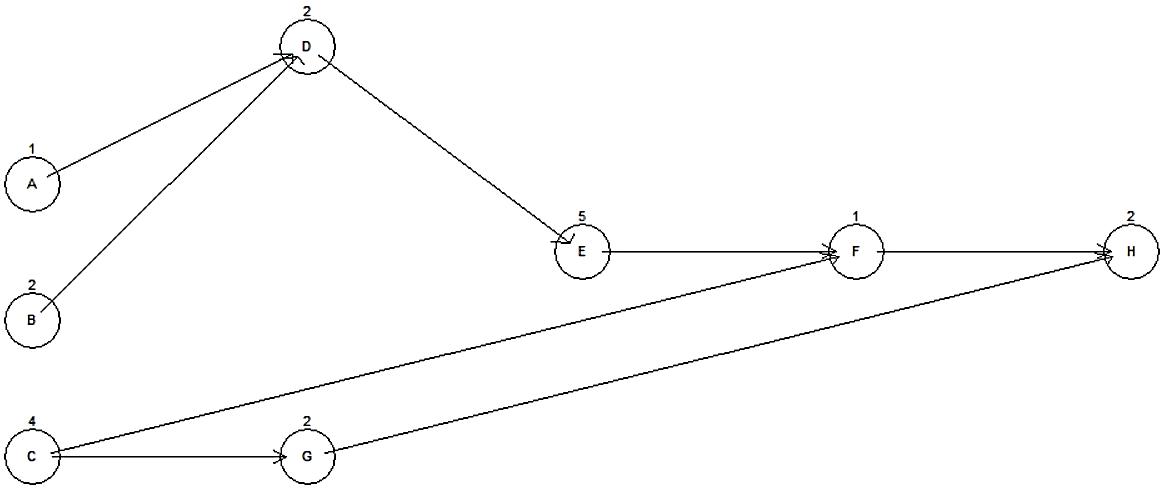
13b. Activity D is critical, so its LS must be the same as the ES of 12. The LF for D is the LS + duration, which is 12 + 7 = 19. Activity C is not critical since its EF is less than the ES of D. The LF of C must be the same as the LS of D, which is 12. The LS of C is LF – duration, or 12 – 2 = 10. Activity B must be critical; it has an LF of 12 and an LS of LF – duration, or 12 – 5 = 7. Also, D’s LS must equal the ES since it is critical.

13c. Activity C has slack, LF – EF = 12 – 8 = 4 Slack.

Cognitive Domain: Comprehension

Difficulty Level: Medium

14.



The project takes 12 weeks; Path B – D – E – F – H is critical.

Cognitive Domain: Comprehension

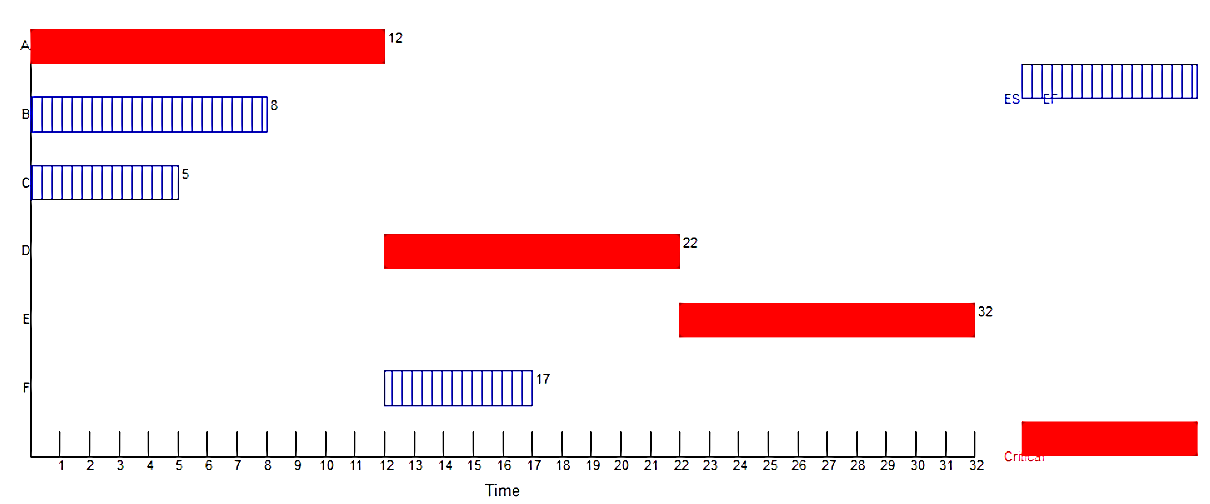
Difficulty Level: Medium

15. The critical path is A – D – G – I – J at 2 + 6 + 3 + 4 + 2 = 17 time units. The other two paths are A – C – F – H – J and A – B – E – H – J.

Cognitive Domain: Comprehension

Difficulty Level: Medium

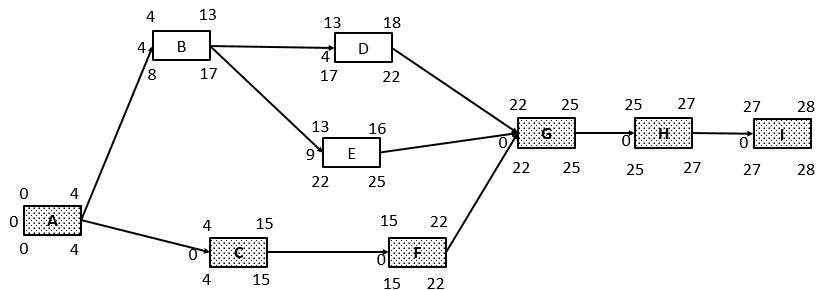
16.



The total project duration is driven by critical path A – D – E = 12 + 10 + 10 = 32. Cognitive Domain: Knowledge

Difficulty Level: Easy

17ab.

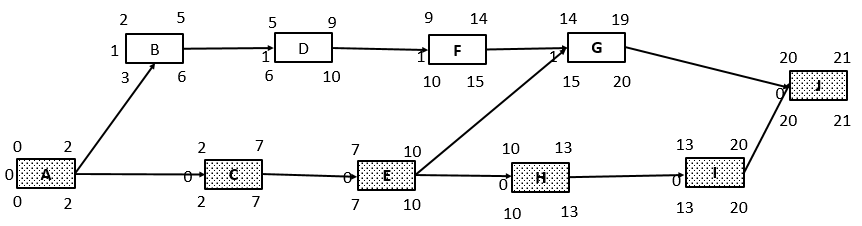


17c. Extending B and D both by 5 days far exceeds the slack for that path. The critical path would shift to A – B – D – G – H – I = 4 + 14 + 10 + 3 + 2 + 1 = 34 days.

Cognitive Domain: Application

Difficulty Level: Hard

18ab. The project is completed in 21 days.



18c. There are three paths through the network: A – C – E – H – I – J, A – B – D – F – G – J, and A – C – E – G – J. Paths A – B – D – F – G – J and A – C – E – G – J have 1 day of slack.

18d. Only non–CP activities have slack, so B, D, F, and G all have slack of 1.

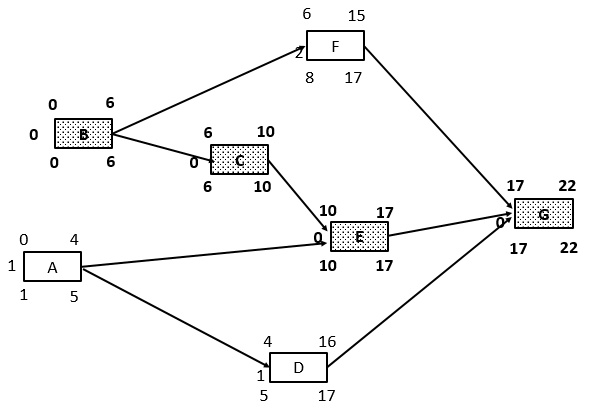
Cognitive Domain: Application

Difficulty Level: Hard

19ab.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *Activity* | *a* | *m* | *b* | *TE* | *Variance* |
| A | 1 | 4 | 7 | 4 | 1 |
| B | 2 | 6 | 7 | 6 | 0.69 |
| C | 3 | 3 | 6 | 4 | 0.25 |
| D | 6 | 13 | 14 | 12 | 1.78 |
| E | 3 | 6 | 12 | 7 | 2.25 |
| F | 6 | 8 | 16 | 9 | 2.78 |
| G | 1 | 5 | 6 | 5 | 0.69 |

19c. The project duration is 22 weeks.



19d. The critical path is B – C – E – G. Other paths are B – F – G with a slack of 2, A – E – G with a slack of 1, and A – D – G with a slack of 1.

Cognitive Domain: Application

Difficulty Level: Hard

20.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Activity* | *a* | *m* | *b* | *TE* |
| A | 4 | 5 | 10 | 5.67 |
| B | 4 | 6 | 9 | 6.17 |
| C | 2 | 5 | 8 | 5 |
| D | 5 | 8 | 10 | 7.83 |
| E | 12 | 16 | 20 | 16 |
| F | 6 | 10 | 12 | 9.67 |
| G | 5 | 9 | 14 | 9.17 |
| H | 14 | 16 | 22 | 16.67 |
| I | 10 | 14 | 20 | 14.33 |
| J | 1 | 2 | 5 | 2.33 |

Cognitive Domain: Knowledge

Difficulty Level: Easy

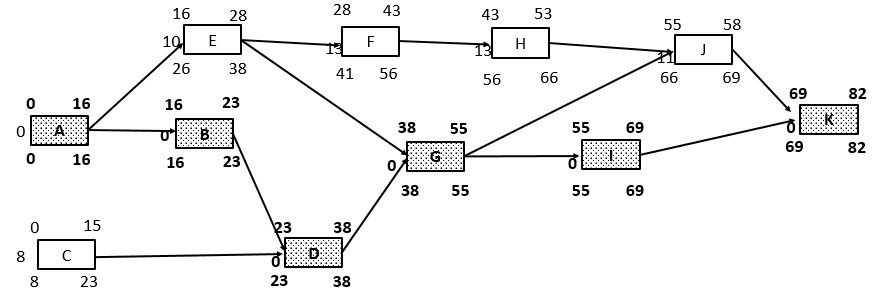
21.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Activity* | *a* | *m* | *b* | *Variance* |
| A | 4 | 5 | 10 | 1.00 |
| B | 4 | 6 | 9 | 0.69 |
| C | 2 | 5 | 8 | 1.00 |
| D | 5 | 8 | 10 | 0.69 |
| E | 12 | 16 | 20 | 1.78 |
| F | 6 | 10 | 12 | 1.00 |
| G | 5 | 9 | 14 | 0.69 |
| H | 14 | 16 | 22 | 1.78 |
| I | 10 | 14 | 20 | 2.78 |
| J | 1 | 2 | 5 | 0.44 |

Cognitive Domain: Knowledge

Difficulty Level: Easy

22. The project’s critical path is A – B – D – G – I – K = 82 days.



22a. Activity E has 10 days of slack, so if it runs 10 days late, the project completion is not delayed. Activity E is now critical, but the remaining non–critical activities still have slack. Cognitive Domain: Comprehension

Difficulty Level: Medium

23.

Cognitive Domain: Comprehension

Difficulty Level: Medium

24a.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *Budgeted Costs for Sample Project*  *Duration (in weeks)* | | | | | | | | | | |
|  | **5** | **10** | **15** | **20** | **25** | **30** | **35** | **40** | **45** | **Total** |
| Design | 6 | 2 | 1 |  |  |  |  |  |  | **9** |
| Engineer |  | 5 | 10 | 12 | 6 |  |  |  |  | **27** |
| Install |  |  | 7 | 15 | 30 | 8 |  |  |  | **60** |
| Test |  |  |  |  | 1 | 5 | 8 | 5 | 2 | **20** |
| Monthly | **6** | **7** | **18** | **27** | **30** | **13** | **8** | **5** | **2** | **116** |
| Cumulative | **6** | **13** | **31** | **58** | **88** | **101** | **109** | **114** | **116** |  |

24b.

Cognitive Domain: Comprehension

Difficulty Level: Medium

25a.

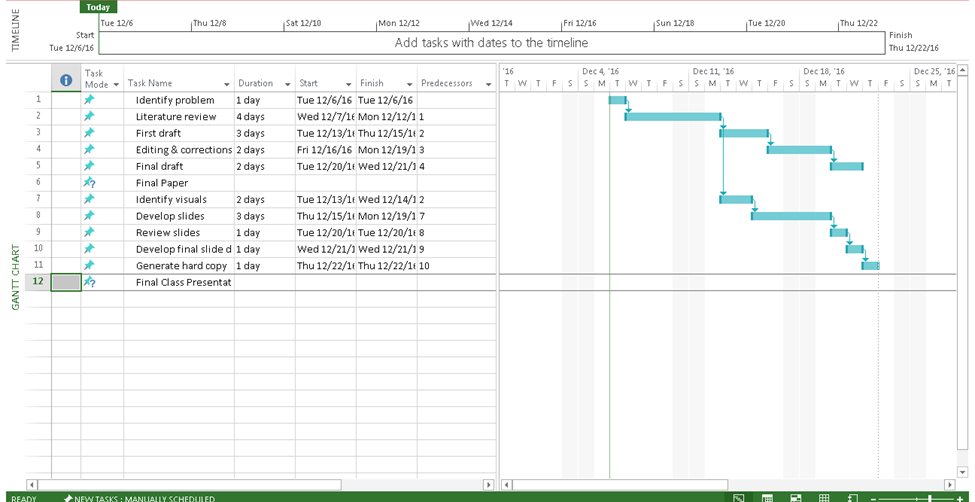
|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *Budgeted Costs for Sample Project*  *Duration (in weeks)* | | | | | | | | | | |
|  | **5** | **10** | **15** | **20** | **25** | **30** | **35** | **40** | **45** | **Total** |
| Design | 4 | 4 | 2 |  |  |  |  |  |  | **10** |
| Engineer |  | 3 | 6 | 12 | 8 |  |  |  |  | **29** |
| Install |  |  | 4 | 12 | 24 | 6 |  |  |  | **46** |
| Test |  |  |  |  | 2 | 6 | 6 | 4 | 2 | **20** |
| Monthly | **4** | **7** | **12** | **24** | **34** | **12** | **6** | **4** | **2** | **105** |
| Cumulative | **4** | **11** | **23** | **47** | **81** | **93** | **99** | **103** | **105** |  |

25b.

Cognitive Domain: Comprehension

Difficulty Level: Medium

26.



Cognitive Domain: Comprehension

Difficulty Level: Medium