Q1) Answer the following statement with True or False: (14 points)

1. ----Planning relates to developing the logic of how project will be constructed.
2. ----Scheduling consists of integrating plan with calendar or specific time frame.
3. ----In time scale presentation, bar chart shows operations and time consumed by each operation.
4. ----Using bar charts the actual status of the project can not be determined.
5. ----Relative schedule status for each activity can be determined from bar chart.
6. ----Precedence diagram is time scaled.
7. ----PERT assumes that activity duration can not be precisely predetermined.
8. ----WBS is a systematic way of describing the components pieces of a project schedule.
9. ----In an arrow diagram, the early event time of the last node is the estimated duration of the project.
10. ----The linear order of activities prolongs the project duration and set most of the activities as critical.
11. ----When the early and late event times of the end event are not the same, the total float values of activity may be positive or negative.
12. ----Dummy activity can be used to establish single starting activity and single end activity for a project network.
13. ----CPM is said to be deterministic in that specific durations, dates and times are determined through its use.
14. ----The development of WBS should be from either top down or from bottom up.
15. ----WBS documents the scope of work involved in the project but not the plan of how the project will be actually constructed.
16. ----The elements of WBS are presented in chronological order.
17. ----Production/construction is an activity that relate directly to the physical effort of creating the project.
18. ----Developing as built drawing is considered construction activity.
19. ----Procurement activities include arranging for the acquisition of materials, money, equipments, and manpower and include a number of activities that influence the time of production activity.
20. ----Activity has flexibility if early start time and late start time equal.
21. ----Constraint is the reason why two activities must be done in a particular order.
22. ----Interfering float is called safe float.
23. ----Activity durations frequently are tied directly to the resources applied to them and productivity of these resources.
24. ----Independent float is called shared float.
25. If the late finish date runs over, the project duration can be expected to be increased by the same number of days that the activity is completed beyond the late finish time.

26. Bar charts show clear dependencies between activities.

27. When a chain of noncritical activities is encountered in network they will have the same value of interfering float.

28. Arrow diagram are more difficult to modify with the introduction of new activities.

Q2) Complete the following statements:

1. PERT refer to: Program evaluation and review techniques (1 point)

2. The three separate durations that the planner required are: (1.5 points)
   a. most likely
   b. optimistic
   c. pessimistic

3. In WBS the level of detail depends primarily on: (1.5 points)
   a. size of the project
   b. level of detail needed to control the project

4. IPAs refer to: Immediately preceding activities (1 point)

Q3) The following Table represents the activity list, its dependencies and duration: the company works only 5 days in the week.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time (day)</th>
<th>Antecedent</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2</td>
<td>--</td>
</tr>
<tr>
<td>B</td>
<td>5</td>
<td>--</td>
</tr>
<tr>
<td>C</td>
<td>3</td>
<td>A</td>
</tr>
<tr>
<td>D</td>
<td>4</td>
<td>A,B</td>
</tr>
<tr>
<td>E</td>
<td>9</td>
<td>B</td>
</tr>
<tr>
<td>F</td>
<td>8</td>
<td>C,D</td>
</tr>
<tr>
<td>G</td>
<td>10</td>
<td>E</td>
</tr>
<tr>
<td>H</td>
<td>12</td>
<td>F,G</td>
</tr>
<tr>
<td>I</td>
<td>2</td>
<td>H</td>
</tr>
<tr>
<td>J</td>
<td>3</td>
<td>F,G</td>
</tr>
</tbody>
</table>

a. Find EFD, LSD, TF, FF for the following activities: (6 points)

<table>
<thead>
<tr>
<th>Activity</th>
<th>EFD</th>
<th>LSD</th>
<th>TF</th>
<th>FF</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2</td>
<td>10</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>F</td>
<td>17</td>
<td>16</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>J</td>
<td>22</td>
<td>35</td>
<td>11</td>
<td>11</td>
</tr>
</tbody>
</table>

b. Critical path passes through: BCFHJ (1 point)

c. The total duration of the project: 7.6 weeks (1 point)
Q4) Figure below shows activities for project, the values on the figure indicate to either TF or FF as shown determine the following:

![Network Diagram](image)

a. The critical path passes through: $1 \rightarrow 2 \rightarrow 3 \rightarrow 6 \rightarrow 9 \rightarrow 10 \rightarrow 11$ (1 point)

b. The TF and FF for the following activities:

<table>
<thead>
<tr>
<th>Activity</th>
<th>TF</th>
<th>FF</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>B</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>C</td>
<td>7</td>
<td>0</td>
</tr>
</tbody>
</table>

(3 points)

Q5) from the figure below find the following: (5 points)

a. Duration of activity A __________

b. Duration of activity B __________

c. Duration of activity C __________

d. Total duration of project is __________

e. Critical path passes through $1 \rightarrow 4 \rightarrow 7 \rightarrow 9 \rightarrow 10$
Q6) The following figure represents activities that removed from arrow diagram compute the following:

a. ESD for activity E is \(8\) 

b. Duration of activity B \(2\) 

c. LSD for activity C \(6\) 

\[
TF = LSF - ESF \\
TF = LSF - ESF \\
TF = LSF - ESF
\]

\[
LSD = 6 \\
LSD = 6
\]