B5.

a) Describe the following THREE characteristics of the ISO9126/ISO 25000 external software quality standards:

   i) Functionality   (3 marks)
   ii) Reliability    (3 marks)
   iii) Portability.  (3 marks)

b) Explain how the following TWO types of quality checking are carried out in the early stages of a development project:

   i) Document review  (4 marks)
   ii) Inspection.     (4 marks)

c) Explain the following TWO types of dynamic testing methods:

   i) Unit testing     (4 marks)
   ii) Systems testing (4 marks)

B6.

a) Describe THREE methods that can be used to gather requirements for a development project. (6 marks)

b) Describe the following two development process models:

   i) Incremental development model. (6 marks)
   ii) Iterative development model. (6 marks)

c) Explain how an agile approach can be used in a development project and state TWO possible disadvantages in using an agile approach. (7 marks)

End of Examination
Section A
Answer Section A questions in Answer Book A

A1.
Risk assessment and management are essential aspects of project management.

a) Explain in detail what is meant by the term risk and discuss why risk management is important. (5 marks)

b) Explain THREE methods that can be used to identify risks. (3 marks)

c) Explain the meaning of the following terms. Discuss how they are used to assess the severity of various risks and their implications for a project.

   i) Impact
   ii) Probability
   iii) Proximity. (6 marks)

d) You work for a small software house which has won a contract from a large charity responsible for nature reserves and you are required to build an Android app for wildlife surveys in a short timescale.

   This is the first app that the charity has specified, and it is vague in places. Your company is familiar with building Java apps in Android studio but has decided that all future apps will be developed in Kotlin, as it is now the preferred Android development language. One of your developers has basic awareness of Kotlin.

   Identify FIVE project risks that you need to consider and give reasons for these. (5 marks)

e) Describe, using a diagram, what is meant by a probability impact grid (also known as a summary risk profile, or probability impact matrix).

   Explain how the grid is used in the risk management process. (6 marks)

Section B
Answer Section B questions in Answer Book B

B4.
a) Describe the following TWO styles of leadership:

   i) Permissive autocrat (3 marks)
   ii) Permissive democrat. (3 marks)

b) Give an example of a situation in a project where the directive autocrat style of management could be appropriate. (4 marks)

c) Describe the FIVE stages of Tuckman-Jensen's classification of team development. (15 marks)
A3.

a) Explain the purpose of the project control cycle. (3 marks)

b) Using a diagram, describe the stages in the project control cycle. (6 marks)

c) What aspects of a project are usually monitored to evaluate project progress? Explain what data and/or tools are used in the monitoring process. (9 marks)

d) Explain what is meant by an exception report and its role in project monitoring and control. Discuss what action can be taken (and by whom) in response to an exception report. (7 marks)
A2.

You work for an IT Training company which is expanding and fitting out three new PC training labs. Technical support will also be expanded by recruiting a new technician.

An outline plan showing the main activities in the project and their duration is shown below:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Select PC and other hardware.</td>
<td>1</td>
</tr>
<tr>
<td>B Order and deliver replacement PCs, printers, servers and other hardware.</td>
<td>8</td>
</tr>
<tr>
<td>C Select, order and deliver application software.</td>
<td>2</td>
</tr>
<tr>
<td>D Order and deliver all required furniture and projector equipment.</td>
<td>10</td>
</tr>
<tr>
<td>E Install and test network infrastructure for classroom.</td>
<td>3</td>
</tr>
<tr>
<td>F Install new PCs with operating and applications software.</td>
<td>3</td>
</tr>
<tr>
<td>G Test applications software on the new hardware and network.</td>
<td>2</td>
</tr>
<tr>
<td>H Recruit additional technician.</td>
<td>8</td>
</tr>
<tr>
<td>I Install furniture.</td>
<td>2</td>
</tr>
</tbody>
</table>

Tasks B, C and D are all dependent on Task A.
Task E cannot start until Task B is complete.
Task F is dependent only on Tasks C, E, H and I.
Task G is dependent on Task F.
Task I is dependent on Task D.

d) When constructing an activity-on-node network, it is necessary to estimate the elapsed time for each activity.

   Explain the expert judgement method of estimation and state ONE advantage and ONE disadvantage of this method.  
   (3 marks)

e) An alternative method of estimation is the parametric method.

   Explain the key features of this approach and illustrate your answer by explaining the role of size drivers and productivity in the activity of installing PCs in a classroom.  
   (5 marks)