Two hours

UNIVERSITY OF MANCHESTER
SCHOOL OF COMPUTER SCIENCE

IT Governance

Date: Wednesday 8th June 2011
Time: 14:00 - 16:00

Please answer any THREE questions from the FOUR questions provided

For full marks your answers should be concise as well as accurate.
Marks will be awarded for reasoning and method as well as being correct

This is a CLOSED book examination

The use of electronic calculators is NOT permitted

[PTO]
1. **RESPONSIBILITY**

   a) Give 5 definitions of IT Governance. (1 mark each)

   b) Why is good governance a prerequisite for security? (4 marks)

   c) The IT department of a bank has the technical know-how and the budget to implement encryption technologies to protect the transmission of a customer's transactions between a PC and the bank's systems. Who needs to be involved to make this security technology an enabler not a hindrance? (5 marks)

   d) How can the opinions of different stakeholders be collected and synthesised into a set of managed requirements? (6 marks)

2. **STRATEGY**

   a) List 5 risks of using public networks to transmit sensitive information. (1 mark each)

   b) List a countermeasure that can treat each of these risks. Make it clear which countermeasure applies to which risk. (5 marks)

   c) Explain the importance of strategy to the governance of an information system. Focus on the achievement of an adequate level of security. (3 marks)

   d) ABC Corporation is changing its business model. They had previously had their own sales team but have replaced it with a network of resellers and an on-line shop for customers' self-service. What are the implications of this change on the security of its business data. Describe who is involved and sketch out - in words or a labelled diagram (or both) – an architecture of a likely information system: its components, its stakeholders, and interfaces where security is most at risk. (7 marks)
3. ARCHITECTURE/STRATEGY AND ACQUISITION

a) How can cloud computing improve security? (4 marks)

b) Explain how security may be managed through the supply chain. (4 marks)

e) Redfriars school has 300 pupils and 50 staff including administration, building maintenance, a school nurse, and (of course) teachers. Some of the teachers also provide careers advice and social counselling to the pupils. The school is managed by a panel comprising 3 governors, (including a parent governor), a bursar (managing the accounts) and the headmaster. Information needs kept on each pupil including attendance records, special needs including dietary requirements, parent or guardian contact details, marks from school work and examinations, and membership of extra curricular clubs, behavioural and disciplinary records. Over the years, the information system has been built up piecemeal and comprises half a dozen PCs networked across the school with a central server in the head teacher’s office. A benefactor from their local computer dealer 'the Universe of IT Emporium' (UNITE) has offered to replace - at UNITE’s expense - the current kit with wireless network laptops for each teacher, workstations for each pupil and administrative staff, and offer database programming expertise. After six months Redfriars will pay for any additional services or new kit. Outline the architecture of the school information system to ensure that information is available on a need to know basis and that this is protected by the school governance structure. Use labelled diagrams and tables if you want to. (12 marks)
4. **PERFORMANCE**

   a) The cells in the table below are scrambled. Match each status with its relevant maturity score and explain the meaning of each.

<table>
<thead>
<tr>
<th>Scores</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Optimizing</td>
</tr>
<tr>
<td>1</td>
<td>Quantitatively Managed</td>
</tr>
<tr>
<td>2</td>
<td>Incomplete</td>
</tr>
<tr>
<td>3</td>
<td>Managed</td>
</tr>
<tr>
<td>4</td>
<td>Performed</td>
</tr>
<tr>
<td>5</td>
<td>Defined</td>
</tr>
</tbody>
</table>

   (5 marks)

   b) What is the difference between leading and lagging metrics?  
   (2 marks)

   c) How can leading and lagging metrics be turned into a real-time tool? What decisions could the tool support?  
   (5 marks)

   d) Company B handles sensitive, personal medical data and has decided to outsource the provision of its IT to Company Z. Company Z has proposed a service comprising:

   - Data back-up,
   - Remote desktop support,
   - On-site back up,
   - Antivirus, and
   - Annual review and recommendations for improvement.

   How can the performance of these proposed elements be monitored?  
   (3 marks)

   What other elements need to be specified to assure the security of Company B's data?  
   (5 marks)

**END OF EXAMINATION**