THE INSTITUTE OF CHARTERED ACCOUNTANTS OF PAKISTAN

Final Examinations   Summer 2005

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INFORMATION TECHNOLOGY MANAGEMENT, AUDIT AND CONTROL
(MARKS 100)
(3 hours)

Q.1   Medi-Retail Limited is planning to start operations as a medical store chain across the country. In the first year of operations they plan to open facilities in at least ten (10) cities with 50+ stores. Key to success of such an organization is smart buying and tight inventory control to gain maximum margin while reducing pilferage and expiry losses. Expired medicines are the liability of the medicine company.

The stores will vary in size from small scale (300-500 square feet) to departmental store (3,000 – 5,000 square feet). They will have corresponding information technology infrastructure requirements.

Required:

(a)   List down major applications required by the company   **(05)**

(b)   Delivery / deployment methodology for each of the suggested applications with reasons for the methodology chosen.   **(10)**

(c)   Connectivity requirements for Head Office, Regional Offices and stores of different sizes.   **(05)**

Q.2   TINGS is a chain of superstores spread all over the country. Two years back, Management of TINGS had acquired and implemented an integrated computer programme to connect their country wide stores. At the same time they made their website E-commerce enabled and started selling goods via their website. The Management of TINGS was expecting an increased customer base, enhanced reputation and high revenue from their Information Technology (IT) initiatives. However, during the recent board meeting the Chief Executive of TINGS reported to the Board that investment in IT had not met the expectations. In his report the Chief Executive said, "Business losses and budget overruns have increased since the introduction of the new IT setup. Also, customer loyalty has changed. They are utterly disappointed with the performance of TINGS website as it is not updated most of the time and orders placed via website are not processed timely. The customers are also annoyed at the performance of the retail outlets as the system often goes down and they have to wait for finalization of their bills till the system recovers. In order to avoid further losses and secure the reputation of TINGS, further spending on existing IT setup should be stopped and TINGS should return to the manual system working two years back". After discussing the issue at length the management decided to appoint an IT consultant to help them out.

You are the IT consultant appointed by the Management of TINGS to review t̶h̶e̶ system.

Required:

(a) Do you agree with the opinion of Chief Executive? Briefly explain. **(02)**

(b) What questions would you ask to identify the IT issues? **(05)**

(c) What questions would you ask to assess whether proper IT governance is exercised by the management? **(05)**

Q.3 Reach Private Limited (RPL) is a distributor of general consumer goods. It has nine business units which handle renowned brands of soap, washing powder and hair shampoo etc. The management of RPL has never been interested in having a large Information Technology (IT) department and is inclined to outsource most of its IT functions. This is also reflected by the fact that despite of having a network of sixty computers and a computerized integrated system developed by a software house, it has only three personnel in its IT department. Operations of IT department are limited to the administration of server and users' rights, sharing of IT resource and trouble shooting of basic LAN problems. Whenever any hardware related problem arises or a computer is infected by a virus, technical assistance from outside is called upon by the affected department on its own. At times different vendors have been addressing the same problem in different departments at different costs. No Service Level Agreement (SLA) exists between RPL and any third party for maintenance of information assets of RPL. Every department has its own budget for IT expenses. There is no centralized purchase policy, each department initiates its own request for proposals and gathers quotations for purchase of computers and its accessories. Each department forwards its expense authorization request to the Finance department based on its own priorities. This often results in an inconsistent purchase as same product is purchased at different prices by different departments. During the past few years the cost to maintain and upgrade the IT function has increased significantly.

You are an Information Systems Consultant and have been approached by the management of RPL to help them in managing IT costs.

Required:

Write a letter to the Chief Executive of RPL covering the following issues:

(a) Basic principles involved in IT acquisition. **(08)**

(b) Weaknesses observed in RPL's cost management of IT. **(02)**

(c) Purpose and benefits of having formal SLAs. **(05)**

(d) Mistakes which should be avoided while preparing a formal SLA. **(05)**

Q.4 AFA Bank is a multinational bank growing rapidly in Pakistan opening up the branches in various cities at various locations. AFA Bank is an innovative and aggressive user of information system and has introduced technology banking throughout. Their nationwide network is linked throughout and ATMs have made banking very customer friendly. You are a security consultant who has been employed by AFA Bank to examine the adequacy of security controls over a new site that was established a year ago in Karachi to house its mainframe computer facilities and establish backbone network office.

Required:

(a) What approach would you undertake to conduct a security review? You need to mention the steps only. **(04)**

(b) Name some types of threats facing information systems? Be brief in your explanation. **(03)**

(c) There could be software threats in terms of viruses and worms. What control measures would you suggest? **(03)**

(d) Usually to handle disasters, companies often have a backup plan for recovery. Propose a backup plan showing the nature of backup and resources for the backup. **(06)**

Q.5 Accelerated Technologies International (ATI), specializes in compiler constructions and embedded systems and has offices in Pakistan and Silicon Valley. Its work focus is development and research. ATI have no product of their own but do research for others. In progress are two development projects and a research study in embedded systems field.

You are a manager in a firm of external auditors that has just taken over the audit of ATI and have expertise in evaluating the reliability of controls over information systems function.

Required:

You are assigned to evaluate the quality of information systems functions. How would you evaluate the top management and check their performance in the functions they perform? **(10)**

Q.6 Energetic Incorporation started out as a small manufacturing firm producing solar energy equipment. With the impending shortage of energy in some countries and greater environmental concerns, demand for its production has grown. The company has trebled in size over a period of five years. A computer system has been designed to facilitate reordering and control over inventory due to some problems faced earlier. As an internal auditor, you are asked to evaluate the system and give useful insights.

Required:

(a) What sort of normative model would you prefer against which you can compare the systems development practices being followed? Explain your model and give reasons for its choice. **(05)**

(b) What do you suggest would be the preferred type of audit approach for such systems? What strategies would you apply to evaluate such systems? **(05)**

Q.7 StarMart is a chain of superstores spread all over Pakistan. Since the shopping activities have increased and expanding in every city, the management has decided to put all the database activities online. A central head office has been established to monitor the activities, for example, calculating the daily sales and placing order for the stores items that have depleted. All the information is managed in the head office through a centralized database. Due to some unavoidable problems in their database, management has decided to hire a database expert. You as a database administrator examined the system and figured out the problems of loss updates, deadlock and problems due to concurrent accesses by different branches etc.

Required:

(a) How can a problem of concurrent access destroy the integrity of a database? How would you solve this problem? **(04)**

(b) Explain the necessary and sufficient conditions for a deadlock to occur. Give examples where possible. **(04)**

(c) Explain the four properties that a transaction must have in order to keep the integrity of database. **(04)**

(THE END)