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THE INSTITUTE OF
CHARTERED ACCOUNTANTS
OF SRI LANKA

SUGGESTED SOLUTIONS

07204 – Information Management

Certificate in Accounting and Business II Examination
March 2013

THE INSTITUTE OF CHARTERED ACCOUNTANTS OF SRI LANKA

Answer No. 01

- (a) Explain six modules they need to integrate to make a comprehensive ERP solution.
- Finance /Accounting
General Ledger, Fixed Assets, Payables, Receivables, Cash Management, Financial Consolidation
 - Management Accounting
Budgeting, Costing, Cost Management, Activity Based Costing
 - Human Resources
Recruiting, Training, Payroll, Benefits, Diversity Management, Retirement
 - Manufacturing
Engineering, Bill of Materials, Work Orders, Scheduling, Capacity, Workflow Management, Quality Control, Manufacturing Process, Manufacturing Projects, Manufacturing Flow, Product Life Cycle Management
 - Supply Chain Management
Supply Chain Planning, Supplier Scheduling, Order to Cash, Purchasing, Inventory, Product Configurator, Claim Processing
 - Project Management
Project Planning, Resource Planning, Project Costing, Work Break Down Structure, Billing, Time and Expense, Performance Units, Activity Management
 - Customer Relationship Management
Sales and Marketing, Commissions, Service, Customer Contact, Call Center Support - CRM systems are not always considered part of ERP systems but rather BSS systems . Specifically in Telecom scenario
 - Data Services
Various "self-service" interfaces for customers, suppliers and/or employees
 - Access Control
Management of user privileges for various processes

(Any six points from the above points)

(6 marks)

- (b) Briefly describe 5 important sub components of an Information Systems Plan.
- i. Purpose of the plan
 - Overview of the plan
 - Current and future business organisation
 - Key business processes and Management Strategy
 - ii. Strategic Business Plan
 - Current business organisation
 - Changing environments and major goals of business plan
 - Firm's strategic plan
 - iii. Current Systems
 - Major systems supporting business
 - Infrastructure – hardware, software, database, telecom
 - Difficulties and anticipated future demand
 - iv. New Developments
 - New system projects – description, rationale, new infrastructure capabilities
 - Required Infrastructure – hardware, software, database, telecom

- v. Management Strategy
 - Acquisition plan – milestones and timing
 - Internal organisation and management controls
 - Personal strategy
- vi. Implementation Plan
 - Anticipated difficulties in implementation
 - Progress reports
- vii. Budget Requirements
 - Requirements, potential savings and Financing
 - Acquisition cycle

(Any five (5) points from the above points)
(5 marks)

(c) Write down and briefly explain 9 important items a TOR should contain.

- i. Purpose
Overall scope and the understanding of the project.
- ii. Background
Context of the project and history behind the project.
- iii. Objectives
Project objectives should be listed clearly along with the business owner.
- iv. Scope
Scope of the project, its boundaries and what is out of scope. Hardware, software and data.
- v. Constraints
Constraints being placed in the program such as the time frame, budget, hardware, software, etc.
- vi. Interfaces
High level interfacing that happens such as interfaces to accounting systems, data warehouses, etc.
- vii. Roles and responsibilities
Roles and responsibilities of the team members such as project manager, team leader, tech leader, business analysts, etc.
- viii. Reporting
Reporting mechanisms daily, weekly, monthly, how and to whom.
- ix. Methods
Method that is being used to deliver the objectives, the high level design along with hardware and software.
- x. Deliverables
Project deliverables, the feasibility, business requirements, design documents, plans, specifications, reports, etc.
- xi. Assumptions
The assumptions stated and the specified dates, tools to be used, etc.
- xii. Dependencies
The dependencies the project completion will depend on will be stated here.
- xiii. Costs
Any key costs to be agreed on such as software licence fees, software purchase and renewal, hardware renewal and purchase, etc.

(any nine (9) points from the above points)

(3)

(9 marks)

(Total 20 marks)

Answer No. 02

(a) Briefly describe the objectives and the benefits of the following Enterprise wide systems

i. Supply Chain Management (SCM)

Objectives

Manage the organisation relationship with many stakeholders such as suppliers, business parties, purchasing firms, manufacturers, dealers, distribution, logistic companies to do planning, sourcing, manufacturing, managing inventory and distributing effectively

Benefits

- Inter-organisational system that allows smooth and transparent flow of information across organisational boundaries.
- Saving time among transactions.
- Increase accuracy of supplies/purchases.
- Stronger relationship among major stakeholders.

ii. Customer Relationship Management (CRM)

Objectives

Coordinate all the business process with regard to customers in sales, marketing, customer acquisition, customer retention, buying patterns, product selling patterns among customers and service to optimise revenue.

Benefits

- Identifying loyal customers, buying patterns of customers and customization their offering.
- Provide end-to-end customer care from receipts of an order through product delivery.
- Integrate the company's customer related process and consolidating customer information from multiple communication channels such as telephone, emails, wireless devices, net mobile etc.

iii. Knowledge Management (KM)

Objectives

Maintain a composite range of strategies and practices used in the organization to identify, create, represent, distribute and enable adoption of insights and experiences.

Benefits

KM systems collect information from internal and external sources and make it available for others, whenever and wherever it is needed to support business process and management decisions.

(9 marks)

(b) PLAST decides to implement an Enterprise wide Information System and they are looking at Buy, Build or Outsource options. State advantages and disadvantages of each of the three options given above.

(i) Buy

Advantages:

- These systems will have common sets of functions and features
- Pre-tested and pre-programmed software according to common standards

Disadvantages

- Could have a lot of features that organisations do not want
- Some employees will not feel that it's customised to suit their systems
- Could be costlier than developing your own.
- Security threats

(ii) Build

Advantages

- Customised to suit your own requirements.
- Internal users can get involved in building what they want

Disadvantages

- Needs a technical team within organisation to build your own systems
- Could take a long time to build the software from scratch

(iii) Outsource

Advantages

- The outsourced organisation is specialised in software development

Disadvantages

- Takes longer and costlier and may not get exactly the system the organisation wants

(6 marks)

(c) In case PLAST decides to purchase software, what are the factors to be considered when selecting software?

- i. Features – whether it has required features to match needs
- ii. Fit – whether s/w is compatible with other IT products
- iii. Future – future trends and customer support from vendor
- iv. Flexibility – to do modifications to changing needs
- v. Budget – whether the software matches your budget
- vi. Return policies – trial version to see satisfaction level
- vii. Training – for employees on the usage of system
- viii. Documentation – User manuals
- ix. Technology – using new technology.
- x. Reputation of the developer
- xi. User friendliness

(5 marks)

(Total 20 marks)

Answer No. 03

- (a) A Computer Based Information System (CBIS) is an Information System that relies on computer hardware and software for processing and disseminating information. Briefly explain the components of a CBIS.
- i. Hardware
Input /Output devices, processing devices, storage devices, magnetic disks for backup
 - ii. Software
System software and application software. Systems software – operating systems. Application software – simple productivity software and other applications such as payroll, accounting software, etc.
 - iii. Database
For organised storage of data – relational database or flat database. Storage mechanisms and retrieval mechanism
 - iv. Telecommunications Networks
For sharing of resources among computers in the organisation and to have connections with the external entities in the world through the Internet.
 - v. Procedures
Stipulated processes for the systems users to use the hardware, software, authorisations with priorities, to maintain confidentiality, to give authority, etc.
 - vi. People
People who work with the system known as information systems staff and people who use the system who can vary from customers to managers within the organisation. Information Systems staff may have data entry operators, systems analysts, systems developers, etc.
- (6 marks)
- (b) PLAST, the company described in the case study in Part A, has decided to implement an ERP solution. Discuss the advantages and disadvantages of an ERP solution.

a. Advantages of an ERP Solution

- i. Easy and correct sales forecasting
- ii. Fast order tracking and correct revenue tracking
- iii. Matching purchase orders, inventory receipts, costing
- iv. Consolidation of finance, marketing/sales, human resource, manufacturing applications
- v. Maintains standards in product coding and naming
- vi. Provides a comprehensive enterprise view making real-time information available for proper decision making
- vii. Protects sensitive data by consolidating multiple security systems and to a single structure.

- b. Disadvantages of an ERP solution
- i. Customisation is problematic and complicated
 - ii. Re-engineering business processes to fit the ERP system may damage competitiveness and uniqueness of business
 - iii. ERP solutions are costlier than integrated software
 - iv. High switching costs increase vendor negotiating
 - v. Overcoming resistance to share sensitive information between departments can divert management attention
 - vi. Integration of truly independent business can create unnecessary dependencies
 - vii. Extensive training requirements take resources from daily operations

(any nine (9) points from the above points)
 (9 marks)
 (Total 15 marks)

Answer No. 04

(a) Data Entering Devices

- The Data Input Devices are known as non-automatic devices
- Human involvement is very high in the Input process such as pressing keys one by one throughout the input process.
- Through Keyboards, Mouses, Pens, Touch Screens data read into the system from source document, or human needable form.
- Can modify the data entered easily by renew entering.
- Type of data is limited to a few type such as text.
- Input error detection easy.

Data Capturing Devices

- Data input devices are called Automatic data input methods (devices).
- Human intervention is very low or none at all.
- Through readers, scanners etc. the data is read into the system from the source document or source media.
- Cannot modify easily except by replacing the entire data set.
- Type of data can be full images, audio, video conversion of physical entities (like temperature) to digits etc.
- Input error detection difficult.

(3 marks)

(b). Data entering devices

1.
 - i. Keyboard
 - ii. Mouse
 - iii. Track Ball
 - iv. Joystick
 - v. Touch Screen
 - vi. Touch Pad
 - vii. Light Pen
 - viii. Graphic Tablet

2. Data Capturing devices
 - i. Bar Code Reader
 - ii. Scanners
 - iii. Magnetic Ink Character Recognition (MICR) devices
 - iv. Optical Mark recognition (OMR) devices
 - v. Optical Character Recognition (OCR) devices
 - vi. Image Scanners
 - vii. Magnetic stripe Cards
 - viii. Smart Cards (with memory chip)
 - viii. Optical Cards
 - ix. Voice –recognition input devices
 - x. Audio input devices
 - xi. Video input devices
 - xii. Digital Cameras
 - xiii. Sensors
 - xiv. Radio Frequency Identifiers (RFID)

(6 marks)

(c).

1.
 - i. Equipment and implementation Cost is low
 - ii. Easy to use
 - iii. Data entering speed is very slow
 - iv. Error rate is high.
 - v. Types of data that can be input are limited
 - vi. Human intervention is always necessary.
2.
 - i. Data entering speed is high
 - ii. Error Rate is low.
 - iii. Equipment and implementation cost is comparatively high
 - iv. User requires training before using devices
 - v. Device can function automatically within setting up.
 - vi. Very small size / light in weight devices could be made to suit the purpose.

(6 marks)

(Total 15 marks)

Answer No. 05

- (a) Virtual Memory or Virtual Storage is a term used to indicate a Main Memory type of a Computer obtained by using the Hard Disk in conjunction with the Random Access Memory (RAM) of the computer. The RAM and Hard Disk both participate together in a mechanism to provide the effect of the resultant de facto Main Memory available for the computer. Under this Memory Management mechanism, only those part (s) of the running program is brought in and made available in the Primary part of the RAM, which can be used by the CPU for processing at that moment. A set of complicated special hardware and software are used to provide this technique.

(6 marks)

(b) The main function of memory management system (Memory Manager) are:

- Keep track of available memory space
- Check validity of requests for memory
- Preserves allocated space to the operating system in the main memory.
- Allocate memory for execution of the program
- De-allocates memory after certain time or after completing usage.

The Virtual Memory Manager of the Operating System has several prerequisites to perform the above operations.

- It follows a process of dividing the program to run into fixed size areas called 'Pages'.
- These areas are systematically spread on the allocated space of the Hard Disk
- It divides the RAM also into same size fixed areas as "Pages"
- Depending on the demand created by the CPU requests, the OS Memory Manager brings in the relevant pages to the RAM at the allocated "Pages" from the Hard Disk and when its use is completed those "Pages" are put back to the Hard Disk original slots which is called 'paging'..
- To perform above and keep track of "Paging" the system use various "Tables"

(6 marks)

- (c) i. Virtual Memory makes the system appear to have more memory than actually available by sharing it between competing processes.
- i. Virtual storage handles programs more efficiently as it divides program into portions and handle portion wise
- ii. Compared to the size of the RAM, it can run very large programs, stored on the Hard disk.
- iii. It can "Load and Run" many programs (various external subroutines etc) at the same time.
- iv. Many users can use the Computer at the same time to run their individual applications.
- v. RAM (and other resources) is mostly utilized.
- vi. Generally ANY program could be run because very less hardware limitations.
- vii. Comparatively small computers can be made more powerful using this method.

(3 marks)

(Total 15 marks)

Answer No. 06

- (a) How does the management know that Information Systems Security and controls are effective. To arrive at this the Company must conduct comprehensive and systematic audits. An information System audit identifies all of the controls that govern individual Information Systems and assesses their effectiveness. To accomplish this, the Information Systems auditor must acquire thorough understanding of operations, physical facilities, telecommunications, security systems, security objectives, oragnizational structure, personnel, manual procedures, and individual applications.

The Information Systems auditor usually interviews key individuals who use and operate a specific Information System concerning their activities and procedures. Security application controls, overall integrity controls, and control disciplines are examined.

The auditor should trace the flow of sample transactions through the system and perform tests, using if appropriate , automated audit software.

Security audits should review technologies, procedures, documentations, training and personnel. A very thorough audit will even simulate an attack or disaster to test the response of the technology, Information system staff and business employees.

The Audit lists and ranks all control weaknesses and estimates the probability of their occurrence. It then assesses the financial and organizational impact of each threat. It includes a section for notifying management of such weakness and for management's response. Management is expected to devise a plan for countering significant weakness in controls.

(7 marks)

(b)

- (i) General Controls
 - i. Software Controls
 - ii. Hardware Controls
 - iii. Computer operations Controls
 - iv. Data Security Controls
 - v. Implementation controls
 - vi. Administrative controls.
 - vii. Backup & recovery
- (ii) Application controls
 - i. Input controls
 - ii. Processing Controls
 - iii. Output controls.
 - iv. Recovery controls
 - v. Application Security controls
 - vi. Audit trails and logs

(8 marks)

(Total 15 marks)

Answer No. 07

- (a) Quality Characteristic of Good Information
- i. Accurate
 - ii. Relevant
 - iii. Up – to- date
 - iv. Timely Simple
 - v. Economical
 - vi. Reliable.

(3 marks)

(b)

- (i) The three management Levels are Operational Level, Tactical Level and Strategic Level.
- **Operational level** is directly involved in the production of goods and services. They are usually the first level of management. Managers at this level have titles such as supervisor, line managers, section chief and chief manager. These managers are responsible for groups of non-management employees. Their primary focus is on the application of rules and procedures to achieve efficient production, provide technical assistance, and motivate subordinates. The time horizon at this level is short, with the emphasis on accomplishing day-to-day goals.

- **Tactical Level** managers are middle level managers of the organization and are responsible for business units and Major departments. Middle Managers hold the titles such as department head, division head, manager of quality control and director of research and development lab. Tactical level is responsible for implementing the overall strategies and policies defined by the strategic level. Middle managers generally are concerned with the near future and are expected to establish good relationships with peers around the organization and encourage team work and resolve conflicts.
- **Strategic Level** is the top level of the hierarchy and is responsible for the entire organization. They have such titles as President, Chairperson, executive Director, Chief Executive Officer, Managing Director and Executive Vice President. Strategic Level managers are responsible for setting Organizational Goals, defining strategies for achieving them, monitoring and interpreting the external environment, and making decisions that affect the entire organization key focus on the long run and very much concerned about general environmental trends and the overall success of the organization .

(3 marks)

(ii) **Types of information**

Information gathered by an organization will be used by different levels of Managers as given above for their respective decision making. These variety of Information is needed for decision making. Top level senior managers need information to plan their business. Middle level managers usually need more detailed information to do their activities. Employees at the operational level need information to help them to carry out their duties. Consequently, information required and used by these three levels can be categorized as Strategic Information, Tactical Information and Operational Information.

Operational Information

Operational level information is the information that is required to the day to day transactions. This information is useful again and again at the operational level to solve the structured problems. Structured problems are problems that can be solved using a predefined procedure or formula. The effects of structured problem are short term and effect of the decision is narrow. Structured problems are identified as programmable questions.

Eg: At a production process, a supervisor should have information to do his activities.

Tactical Information

Tactical Information is consumed by middle level managers to solve the tactical problems. Middle level managers solve semi-structured problems. Semi-structured means it is a combination of features of the structured and unstructured problems. Effects of the tactical decisions are middle term.

Strategic Information

Strategic Information is used to solve strategic problems. Strategic Problem are unstructured problems that cannot be solved using predefine procedure. Effects of Strategic decisions are long term and also affect the entire organization, Hence it is very difficult to satisfy these information requirements.

E.g: Launching a new product, Change price of a Product.

(9 marks)

Answer No. 08

(a) Management Information Systems (MIS)

MIS is used to identify a specific category of information systems that serves the Management Level (Tactical level) of an organization. It provides managers with reports and often access to the organization's current performance and Historical records. MIS exclusively have an internal orientation and it does not have an environmental or external orientation, MIS serves the management functions of planning, controlling, and decision making at the management level (Tactical level). Generally they depend on underlying transaction processing system for their Data. MIS provides summarized reports on the company's basic operations. The basic transaction data from transaction processing system are summarized and presented in periodic reports.

MIS usually serve managers primarily interested in weekly, monthly and yearly results. However, some MIS enable managers to examine and see daily or hourly data if required. MIS generally provide answers to routine questions that have been specified in advance and have a predefined procedure for answering them. These systems are generally not flexible and have little analytical capability. Most MIS use simple routines such as summaries and comparisons, as opposed to sophisticated mathematical models or statistical techniques.

(7 marks)

(b) General Technical roles specialists involved in developing an Information System are Team Leaders, Software Engineers, Software Architects and Software Quality Assurance Engineers.

(c) **Team Lead**

A Team Lead is responsible for managing the implementation of a variety of software solutions and achieve a specific block of project objectives. The work undertaken is generally of a highly complex and technical nature, and involves the application of computer science and mathematics in an environment which is constantly evolving as a result of technological advances. They increasingly need to have knowledge of a variety of computer programming languages and applications, this is due to the wide variety of work that they can be involved in.

Software Engineer

A software engineer is responsible for implementation of a variety of software solutions, Once the system has been fully implemented, software engineers then maintain the systems. The work under taken by software engineers is generally of a highly complex and technical nature, and involves the application of computer science and mathematics in an environment which is constantly evolving as a result of technological advances. They increasingly heed to have knowledge of a variety of computer programming languages and applications ; this is due to the wide variety of work that they can be involved in. Software engineering is one of the most popular professions in IT in terms of numbers employed.

Software Architect

A simplistic view of the role is that architects create architectures, and their responsibilities encompass all that is involved in doing so. This would include articulating the architectural vision, conceptualizing and experimenting with alternative architectural approaches, creating models and component and interface specification documents, and validating the architecture against requirements and assumptions. This is a highly technical role.

Software Quality Assurance Engineer

Quality Assurance (QA) Engineers are the bridge between end-users and programmers. They must understand the problem that users can encounter. Early on, an entry-level QA position involves simple testing so they need to have testing skills in a various platform and also little bit of programming knowledge.

(8 marks)

(Total 15 marks)



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