

STRICTLY CONFIDENTIAL

THE PUBLIC ACCOUNTANTS EXAMINATION
COUNCIL OF MALAWI

2014 EXAMINATIONS

ACCOUNTING TECHNICIAN PROGRAMME

PAPER TC 4: INFORMATION SYSTEMS

WEDNESDAY 4 JUNE 2014

TIME ALLOWED: 3 HOURS
2.00 PM – 5.00 PM

SUGGESTED SOLUTIONS

1. (a) (i) Study the new system specification and acceptance.
- (ii) Plan the actual changeover – this would involve detailed list of activities that will take place during changeover which includes choosing the changeover method.
- (iii) Design forms and acquisition of materials for the new system
- (iv) File making and conversion
- (v) Organize a staff appreciation and training seminar
- (vi) Organize standby facilities
- (vii) Manual run data listing, connection and documentation
- (viii) Complete system testing, evaluation and correction – parallel running
- (ix) New system acceptance, changeover and security installation
- (x) System maintenance – planning and control systems
- (xi) Evaluation audit for achievement of management system objective
- (xii) Maintenance updates and correction as necessary.

(b) An invoice should as much as possible have the following fields:

- (i) name and address of customer
- (ii) name and address of your company
- (iii) date of the invoice
- (iv) an item bought
- (v) quantity of the item bought
- (vi) total of the line item
- (vii) customers reference (order number or cash receipt number)
- (viii) item unit price
- (ix) value added amount
- (x) discount details (if any)
- (xi) invoice total
- (xii) your surtax registration number
- (xiii) invoice number.

2. (a) A spreadsheet is an application package which enables the arithmetical and statistical analysis of data.

A spreadsheet can be described as the depiction of text or data using columns and rows. It is similar to a sheet of analysis paper in structure.

A	B	C	D	E	
1				cell	
2					
3					→ Row
				↓ column	

- (b) (i) Ease of use with a lot of help function, it accomplishes ease to the user.

- (ii) High speed – being on a computer system, it processes the arithmetic and other functions fast.
- (iii) User friendliness – contains help functions and some error correcting routines.
- (iv) Compatibility with lots of hardware
 - It can be installed on a variety of hardware. It is not machine specific.
- (v) Can develop own macros and this can ease a few logical functions.
- (vi) Minimum requirements: it requires minimum hardware/software to run.
- (vii) Easy to install: on screen guide during installation.
- (viii) Minimum training required:
 - The elaborate help menus make it easy to understand a spreadsheet.
- (ix) Integration with other data bases on general ledger packages hence reduces data entry duplication.
- (x) Ability to import and export to and from other applications.

3. (a) INTRA means internal or within, so an intranet is an internal or private network that uses internet protocols and can only be accessed within the confines of a company, university or organization. Inter means “between or among” hence the difference between internet and intranet.
- (b) Intranets are used to deliver tools and applications e.g. collaboration (to facilitate working in groups and teleconferencing) or sophisticated corporate directories, sales and customer relationship management tools etc.

Intranets are also used as corporate culture – change platforms. Example is larger numbers of employees discussing key issues in an intranet forum application could lead to new ideas in management, productivity, quality and other corporate issues.

Benefits of an intranet:

- (1) Improve productivity

In a single place, intranet provides employees with all tools they need to perform their day's tasks e.g. latest events and meeting, outstanding tasks, new discussions, important documents, relevant news.

(2) Corporate communication

The intranet is your employees' virtual home and holds a sustained part of their attention. It is therefore perfect place for 2-way communication with employees.

- Feedback, announcements, grievance redressed, advertise initiatives and policies, recognize performers, vacancies etc.

(3) Streamline processes

Use the intranet not just to document processes, but provide the actual tools employees need to automate workflows within the intranet.

(4) Spur collaboration

Intranets are a hub where people connect and share information. Modern social tools built into intranets encourage employees to bypass hierarchies and collaborate directly with colleagues.

(5) Knowledge management

Knowledge management is the process of capturing, organizing and retrieving all knowledge created in an organization. Capture knowledge with tools like documents, wikis, blogs, discussions, social messaging.

(6) Cost reduction

Through meetings, travel and telephone time reduction.

Training, corporate, administrative and operational communication cost saving.

(7) Effectiveness (business results)

- Faster time to market
- Rapid project development and roll-out
- Better communication to and with affected parties
- Better, faster feedback, adaptation and correction.

4. (a) A database is a collection of data organized to service applications. It provides convenient access to data for a wide variety of users and user needs.

(b) A database management system is the software that centralizes data and manages access to the database. It is a system, which allows numerous applications to extract and/or update data they need without the need for separate files.

(c) Characteristics of a database system

- (i) Shared: Different users are able to access the same data for their own processing applications. This removes the need for duplicating data on different files.
- (ii) Controls: To preserve integrity of the database.

- (iii) Flexibility: The database system should provide for the needs of different users. It should be capable of evolving to meet different user needs.

(d) Advantages of a database system:

- (i) No duplication of data
Data can be used for many purposes but only need to be input and stored once.
- (ii) Multi-purpose data
Although data is input once, it can be used for several purposes.
- (iii) Corporate data as opposed to departmental data – it serves the whole organization.
- (iv) Consistency

Because data is only held once, it is easier to ensure that it is up-to-date and consistent across departments.
- (v) New uses of data
Because data is held independently of the programs that access it, new programs can easily make use of existing data in a different way.
- (vi) New applications
Developing new applications with a database is easier since a central pool of data is already available.
- (vii) Flexibility
Relational systems allow information from several different sources to be combined and providing answers to ad-hoc queries.

(e) Disadvantages of a database system

- (i) Potential problems of data security and data privacy
There must be administrative procedures to supplement software controls.
- (ii) One set of data
The data should be accurate and free from corruption. A back-up routine is essential.
- (iii) Cost
Initial development costs may be high.

5. (a) Electronic data processing systems:

- 1950 and 1960.
- Could be afforded by only the largest organizations
- They were used to record and store bookkeeping data such as journal entries, specialized journals and ledger accounts.
- Strictly an operations support role.

(b) Management information systems:

- Generated a limited range of predefined reports.
- Produced income statements called P & L back then, balance sheets and sales reports.
- Evolved in 1960s.

(c) Decision support systems:

Introduced 1970s

- They were interactive as they allowed the user to choose between numerous options and configurations.
- User could customize outputs.
- User could configure the programs to their specific needs.
- There was a cost though of compilation.
- Had to pay an IBM developer permanently on site.

(d) Decentralized computing

- Introduced 1980
- Numerous PCs were spread around organizations instead of one large mainframe computer.
- Batch processing work submitted to computer department reduced.
- Each user had own computer and could customize for their own purposes.
- DOS protocols, Bios functions, and DOS batch programming surfaced.

(e) Expert systems

- Introduced 1980s.
- First commercial application of artificial intelligence techniques.
- Program could give advice within a very limited subject area.
- The promise of decision making support had step by step come to fruition.

6. (a) Data is unprocessed facts about a situation or an environment and therefore not directly useful for a given purpose. Some systems process physical prime resources such as wood, steel, chemicals to produce output (goods or services).

Data processing systems manipulate the prime resource, data, to produce output – information. The data is classified, sorted and summarized. As management level goes up, the lower management level information becomes higher management level data.

- (b) Computers play a major role in turning data into information as computers are tools that can group large volumes of data and process them at very high speed to produce information at the required levels. Computers also do act as storage for data and information. This is done by use of input, process, output and storage devices. However software plays vital role in the process section.
- (c) Data can be turned into information without use of computers by using manual methods which would normally include use of set of instructions to be acted upon data. This could be likened to the computer application program. The manual method use a human being using his memory and brain. This could be likened to the computer processor and memory. The human being also uses such tools as paper, calculators, pen, files and filing cabinets for storage. The manual method is in most cases slow and cumbersome.
- (d) Advantages of data processing
- (i) Processing of data is done in large volumes at a greater speed and accuracy.
 - (ii) Paper-less office since all outcome is kept on electronic devices.
 - (iii) Less error prone than humans.
 - (iv) Providing output of consistently better quality.
 - (v) Immune from human conditions e.g. sick leave, strikes, maternity leave, fatigue.
 - (vi) For accounting systems, double entry is automatic.

Disadvantages

- (i) Computers can be expensive to install and maintain.
- (ii) GIGO – Garbage in, garbage out. If software is wrong, you get wrong results.
- (iii) Viruses can cause data to be lost.

- (iv) Frequent change in technology can lead to frequent replacement of computers hence can be expensive.
- (v) Computers require electricity to run hence can be expensive in remote areas.
- (vi) Computers require trained technical personnel to use and maintain.
- (vii) Can lead to job losses to do process huge volume which was done by several humans.

7. (a) A disaster recovery plan (DRP) is a documented process or set of procedures to recover and protect a business IT infrastructure in the event of a disaster. Such plan, ordinarily documented in written form specifies procedures an organization is to follow in the event of a disaster. It is a comprehensive statement of consistent actions to be taken before, during and after a disaster". The disaster could be natural or man-made. Man-made disasters could be intentional (for example, an act of a terrorist) or unintentional (that is, accidental, such as the breakage of a man-made dam).
- (b) **Five steps to develop a recovery plan:**
1. Take inventory of assets
 Most companies have no idea what they need to protect including applications, telephone/fax, phone numbers and other "unofficial" applications that you claim you do not support. Do not forget outsourced applications as well.

 You need to assemble everything you will need including installation media, serial numbers, key codes.
 2. Need to identify personnel and backups
 These people who fill positions without which your business absolutely cannot function. Make the list as large as necessary but as small as possible.

 Consider which job functions are critically necessary, everyday. Think about who fills those positions when primary job holder is on vacation.

 Make a list of all those individuals with all contact information including business phone, home phone etc and any other way of contacting them.
 3. Document external contacts
 If you have critical vendors, build a special contact list that includes a description of the company (on individual) and any other absolutely critical information about them e.g. consultants, equipment providers, computer bureaus.

4. Identify your contingency location:

This is the place you will relocate to while your primary offices are unavailable. It could be a bureau, hotel, etc. Include a map in your DRP to that location. Make sure you have appropriate contact information including people's names.

5. Assign roles

It should include step by step instructions on what to do and who should do it and how. List each responsibility and write down the name of the person assigned to it. Also do a reverse for each person list the responsibilities.

6. Put the information together

A DRP is useless if all the information is scattered about in different places. A reference document should be made. Make copies and give it to each of your key personnel.

Communicate the plan so that everyone in the company knows about the DRP. You may hold training session with the staff.

7. Test the plan

After all is done, i.e. put up ideas, accumulated of all your information, identified contingency locations, listed your personnel, contacts and service providers, you need to test the plan.

Pick a day and let everyone know what is going to happen (including your customers, vendors, etc). Act as though your office building has been destroyed. You may not get it all right first time. Make necessary changes and run the test again sometime.

8. Review and revise

Every time something changes, update all copies of your DRP. Never let it get out of date. An out of date plan can be worse than none. It can make you feel safe when you are definitely not safe.

8. (a) Software are the detailed instructions that control the operations of a computer system. Without software, computer hardware cannot perform the tasks associated with computers and no information will be processed by computers. The hardware devices will end up being some pieces of equipment.

- (b) Software development stages:

(1) Preliminary investigation or analysis

This is the task of extracting the requirements from users and gauging the feasibility of the project. Project sponsors usually know what they want but often have incomplete, ambiguous or contradictory requirements. It is the job

of software developers and project managers to steer them in the right direction and to clarify requirements.

(2) Specification and requirement analysis

This step can vary a lot depending on the formality, size and scope of the project and the methodology used in an organization.

In general, it involves taking the requirements and describing them in a way meaningful to programmers. In your average business application this usually is a mapping between the user requirements and a description of the functionality to be coded into a program, such as a screen that displays current inventory or a report that has sales figures.

(3) Design or architecture

This step gets into more low level details than the previous step for example, the specs say to develop a sales report while the design says use VB.Net, crystal reports with an option to export to excel and query the data warehouse DB and not the main production DB.

(4) Development or coding

This is pretty obvious, thus where the rubber meets the road and the program is built.

(5) Testing and documentation

This is of course, making sure the program functions as required and the program's functionality is described fully to allow for easier maintenance in the future. This is probably one of the least favourite areas among software developers.

(6) Implementation or deployment

This is the process of getting the program into the hands of users. This usually includes more than just the act of distributing the software but also providing training to users.

(7) Maintenance

This step is concerned with maintaining the existing program by fixing any bugs and enhancing the software. With a well written system, most of the actual maintenance is for small, incremental, improvements rather than actual bug fixes.

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