



## Ethiopian TVET-System



# Clerical Work Support

## Level-II

Based on August 2012 G.C. Occupational Standard

**Module Title: Using Basic Clerical Support Technology**

**TTLM Code: EIS CWS2 M08 TTLM 0919v1**

**This module includes the following Learning Guides**

**LG23. Select and use technology**

LG Code: EIS CWS2 M08 LO1-LG-23

**LG24. Process and organize data**

LG Code: EIS CWS2 M08 LO2-LG-24

**LG25. Maintain technology**

LG Code: EIS CWS2 M08 LO3-LG-25

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<b>Instruction Sheet 1</b>	<b>LG23. Select and use technology</b>
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This learning guide is developed to provide you the necessary information regarding the following content coverage and topics –

- Using appropriate *technology* and *software applications* are selected to achieve the requirements of the task
- Applying Workspace, furniture and equipment are adjusted to suit user ergonomic requirements
- Using Technology according to **organizational requirements** and in a way which promotes a safe work environment

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, you will be able to

- Use Appropriate *technology* and *software applications* are selected to achieve the requirements of the task
- Apply Workspace, furniture and equipment are adjusted to suit user ergonomic requirements
- Use Technology according to **organizational requirements** and in a way which promotes a safe work environment

**Learning Instructions:**

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number --- to --.
3. Read the information written in the “Information Sheets ---”. Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
4. Accomplish the “Self-check ---” in page \_\_\_.
5. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-check ----).
6. If you earned a satisfactory evaluation proceed to “Information Sheet ---”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #---.
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<b>Information Sheet-1</b>	<b>Select And Use Technology</b>
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1.1 Using appropriate *technology* and *software applications* are selected to achieve the requirements of the task

**What Is Technology?** Technology is a body of knowledge devoted to creating tools, processing actions and the extracting of materials. The term ‘**Technology**’ is wide, and everyone has their way of understanding its meaning. We **use technology** to accomplish various tasks in our daily lives, in brief; we can describe technology as products and processes used to simplify our daily lives. We use technology to extend our abilities, making people the most crucial part of any technological system.

Technology is also an application of science used to solve problems. But it is vital to know that technology and science are different subjects which work hand-in-hand to accomplish specific tasks or solve problems.

We apply technology in almost everything we do in our daily lives; we **use technology at work**, we use technology for **communication**, transportation, learning, manufacturing, securing data, **scaling businesses** and so much more. Technology is human knowledge which involves tools, materials, and systems. The application of technology typically results in products. If technology is well applied, it benefits humans, but the opposite is true, if used for malicious reasons.

**Advantages of modern technology**

**Easy Access to Information**

It has become pretty easy to get access to relevant information at anytime and anywhere. This has been possible because of modern technologies like broadband internet. Lots of data is being published and indexed online, sites like Wikipedia and YouTube have great original content that is regularly used for research or entertainment. With smart gadgets like the iPad, iPhone, Galaxy tablets, etc., users can easily have access to a vast amount of information wherever they are through the use of the internet on these devices. So a user on a train can easily read breaking news while traveling, they can also buy and sell stocks while in the bedroom or access their smart home temperature on the go. These smart gadgets make it easy to access the internet anywhere, and this simplifies the way we get information.

**Encourages Innovation and Creativity**

Since technology seems infinite, it sparks the brain to work to its full potential. In the past, it used to be very difficult to start a business, one had to have lots of capital, and they even had

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limited access to business information. Today, it is simple to start a business while at home. Let's look at companies like Shop for handmade, vintage, custom, and unique gifts for everyone which enable creative people to sell their works online; this encourages creativity. Another good example is Kick starter which helps creative people get funds for their projects through crowd funding. On this platform, creative developers post projects to seek funding from the community; this helps them generate capital for their ideas which later leads to the creation of new jobs and further innovation of technology. The other creative works which have been facilitated by modern technology include Google, Apple, Facebook, Microsoft, Amazon, etc

### Improved Communication

Communication is like water to life; it is essential to growth, We can not progress without communication. Modern technology has blessed us with advanced communication technology tools. These include e-fax, electronic mail, mobile phones, video conferencing, instant text messaging applications, social networking, etc.. All these modern communication technology tools have simplified the way humans and businesses communicate. I can quickly talk to my relative overseas using a mobile phone or video chatting services like Skype.

### The Convenience of Traveling/ Ease of Mobility

Modern transportation technology makes it very easy to travel long distances. Transport is a very important both in our lives and in the business world. Transportation technology has evolved with years. In the past, it used to be slow and expensive to move long distances. Nowadays, we can cover a 10 miles distance within a few minutes using electric trains, airplanes or cars.

### Improved Housing and Lifestyle

Another excellent way how modern technology has simplified our lives. If you compare the type of housing we used in 1900 and the architecture of houses today, the difference is enormous. New architectural technology has improved the kinds of home we build. People with money can afford floating homes, and glass homes or people with smaller means can make tiny houses or mobile homes. Most of the items in our houses are now automated, for example, doors use fingerprints, key cards, or Bluetooth on our mobile. Security has also increased at home with the evolution of more robust **integrated security system**.

### Improved Entertainment

Modern technology has played a significant role in changing the entertainment industry. Home entertainment has improved with the invention of video games, advance music systems and visual systems like smart televisions, which can connect live to the internet so that a user can share what they're watching with friends. Easy access and storage of music are ever present, services like iTunes allow users to purchase and download music on their players at a small cost, this is a win-win situation for both musicians and the users. Additionally, bars, clubs, and amusement parks have all benefited from advancements in technology. We can see things in 3D, ride the highest roller coaster or be served by a robot at the bar, all possible through modern technology.

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## Efficiency and Productivity

Modern technology has helped businesses increase production. Humans are slow, and sometimes they fail to deliver on time and quality. Many companies have integrated modern technology in their production line, increasing output and allowing for more consistent quality.

## Convenience in Education

Learning is a process, and it is part of our daily lives. Modern technology has made it simple for students to learn from anywhere through online education and mobile education. Also, students now use modern technology in classrooms to learn more effectively. For example, students use tablets to share visual lessons and examples with peers in the classroom; this has made learning more convenient and fun. Also, new modern educational technologies support individual learning which gives students a chance to learn on their own with no need for tutors.

## Social Networking

Modern technology has made it simple to discover our old friends and also discover new people to network with; this is a benefit to both individuals and businesses. Many businesses have embraced social networking technology to interact with their customers. Users of social networks can share information with friends, live chat with them and interact in all sorts of ways.

## Benefits to the Health Industry

Today most hospitals have implemented modern technology in surgical rooms, and this has reduced mistakes made by doctors. Humans can easily make mistakes because of work overload and stress factors. Additionally, the development community has developed health apps that enable us to monitor our health, weight or fitness. These applications are used on mobile phones, so users have access anytime.

### What does *Application Software* mean?

Application software is a program or group of programs designed for end users. These programs are divided into two classes: system software and application software. While system software consists of low-level programs that interact with computers at a basic level, application software resides above system software and includes applications such as database programs, word processors and spreadsheets. Application software may be bundled with system software or published alone.

Technology is a force to reckon with in the workplace today and its influence has been the major drive for most historical breakthroughs. It is evolving and transforming the way things are being executed in the world today. Ranging from software that gives you the ability to communicate effectively to smart conference tables that enables anyone to have a smooth

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control of their screen even while sharing with others, the impact of technology is just indispensable in the offices today. Therefore, the modern day office must also evolve and move along with this trend of technological innovation and improvement through the process of introducing modern technological tools and accessories to the workplace

Examples

**Wi-Fi Internet**

Internet is an important component of technology and it has also been a major drive towards moving the business forward today. Office structures and work ethics have shown that people need to be connected to each other and to the internet so as to work effectively. Therefore, having a dependable and high-quality Wi-Fi is pivotal to achieving this and it is as such an important instrument in sustaining the employees in the work zone.

**Communication Tools**

One of the utmost challenges in companies and several workplaces is transmitting ideas either across fields or through distant spaces. The solution to this would, therefore, require just more than one tool. That’s why new communication platforms such as Skype or Zoom with quality microphones and video conferencing features are used collaboratively in different workplaces to achieve telecommuting between employees and coworkers. These communication tools have been adapted for different end purposes and the choice of which to use depend on the purpose and need at the time.

**1.2 Appropriate technology and software applications are selected to achieve the requirements of the task**

**What Is Clerical Work?**

Clerical work typically refers to a variety of office and administrative support duties. If you're interested in a career in clerical work, read on to learn more about the nature of the profession and the variety of occupations available. Clerical work generally involves day-to-day office tasks, such as answering phones and entering data into spreadsheets. These tasks may be performed by secretaries, office clerks and administrative assistants. Other duties traditionally associated with clerical work include:

- Word processing and typing
- Sorting and filing
- Photocopying and collating
- Record keeping

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- Appointment scheduling
- Minor bookkeeping

## Technology and Clerical Work

The above duties have changed with developments in technology, including the operation of sophisticated computer systems, printers, copiers and other technologies. As a clerk, you'll need to be familiar with the equipment and software used in offices.

## Specializations

Clerks are employed in a wide range of industries, applying their organizational and office skills to meet the needs of their employers. While some are general office clerks, others specialize in one type of clerical work, such as business, finance and government. These professionals may fulfill more complex tasks.

### Business

There are a variety of clerical roles available in a multitude of business settings, and specific duties vary by company and department. Payroll clerks, for example, verify and process employees' paychecks, while shipping and receiving clerks process paperwork for ingoing and outgoing orders. Other positions include mail, file, billing and stock clerks. The business sector also offers many opportunities for general office clerks and secretaries.

### Finance

Banking and financial institutions employ a large number of clerks. Along with general office duties, these professionals may be responsible for money-related clerical tasks. For example, brokerage clerks tend to work with investments and securities, which can include writing and processing stock and bond orders and keeping records of financial transactions. Other clerks may focus on office duties related to loans, claims or adjustments.

### Government

General clerks and administrative assistants may find employment in all sectors of government. You may serve as a court clerk, preparing dockets and performing tasks for judges, lawyers and witnesses. You might choose to work as a license clerk for your state's Department of Motor Vehicles or as a municipal clerk who attends and documents city council meetings.

## What is technology tool?

A technology tool can be considered as any asset that helps or assists the organization to achieve its stated aims or objectives. There are various types of tools that may be used in a business varying in size, complexity, danger, and importance to the business operation. There are the large, heavy tools such as stoves, refrigerators, cars or freezers. This unit aims to

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consider the items that are portable and valuable, and by their very nature present unique management challenges to the business. There are various considerations that relate to the management of these items that are not applicable when considering their other cousins. For example it is very easy to misplace a mobile telephone, but very difficult to misplace a freezer. The cost of using a mobile phone can vary significantly; the cost to the business of the mobile can be reasonable or exorbitant depending on use. It is also a challenge to misuse a freezer. However, there have been several cases where the misuse of a telephone has had significant implications for employees and for the business.

Modern managers must to be able to manage these tools to ensure that they are available when required, are in a usable and operating condition and that the user is sufficiently trained to use the device efficiently. A mobile phone must have a sufficiently charged battery, a mobile service, and a user who is sufficiently trained or experienced to be able to use the tool in an efficient and productive manner. To continue the example of the mobile telephone, it is possible to imagine a situation where an employee is given a phone with a flat battery. A charger is eventually found and the battery charged. When the phone is switched on it asks for a security code, which is unknown, but also later located. When this is entered it is discovered that the bill has not been paid and there is no service. This is a simple example of the care and management that is necessary to ensure that the tool does meet the needs of the business and that the tool enhances the performance of the business.

## Examples of Common Business Tools

Each of these items represents an investment by the business and can be considered important to the business. As they are portable they can be misplaced, require usage monitoring, training, and maintenance:

- Digital Cameras – still, moving, and in mobile telephones
- Mobile Telephones
- Pagers
- Scanners
- Photocopiers
- Notebooks
- Batteries
- Dictation machines
- Order taking handhelds
- Laser pens
- Mice

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- Keyboards
- Brochures
- Information
- Knowledge
- Facsimile
- Manuals
- Landline telephones
- Software
- Wiki
- Email
- The business web site.

### Tools & Technology Used in Clerical Occupations

Clerical workers need to keep pace with the rapid changes in office equipment. The sights and sounds in a modern business office are very different from those of years ago, thanks to rapid advances in technology. Office equipment and the software it uses typically need to be upgraded on a regular basis. As a result, clerical staffs today are expected to be familiar with basic office software as well as the hardware used for document production.

#### 1. Computer Skills and Equipment

- Clerical staff will regularly be exposed to new requirements for using computer hardware and software. Much of it is basic-level computer use focused on word processing, spreadsheets, email, printing, and maybe some presentation slide preparation. A significant portion involves preparation and formatting of documents originally drafted by analytical and management staff in the same office group. Knowledge requirements include familiarity with basic computer operations and operating system software to start programs and find files as needed.

#### Duplication and Reprographics

- Because clerical work involves a significant amount of record-keeping, organizing, and duplicating, clerical staff should be familiar with operating electronic scanners and related software as well as photocopier systems. Many photocopiers today are hybrids of desktop publishing software management and copier equipment, so clerical staff are frequently expected to perform high-volume duplication processes from print-ready documents.

#### Phone and Fax Communications

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- Given the heavy use of phones and fax machines in offices, clerical staff are also expected to be adept at basic office communication systems. In more advanced offices, fax communications are now being addressed through the email system via phone numbers that convert incoming faxes to PDF data files. As a result, clerical staff should have familiarity with converting documents back and forth between hard-copy and electronic formats. Clerical staffs are also relied on as the point of contact for phone and fax maintenance in the office, so some knowledge of that equipment and related networks can be helpful.

### Video and Virtual Conferencing

- With more and more offices looking for ways to hold meetings without the cost of actual travel, video and virtual conferencing are becoming the norm. Clerical staff are being increasingly expected to have an understanding of how to manage and set up meetings for supervisors via such equipment or Internet client software on a regular basis. This reliance will likely increase as computers and networks with heavy bandwidth capability become more available.

### Design and produce appropriate *technology*

There are several ways you can tackle the task of planning a document. The following steps are a useful way of getting started and of ensuring that the result is appropriate, readable and clear.

1. Identify your reason for writing the document
2. Consider the needs of your receiver
3. Decide what points and ideas you need to include
4. Decide the best way to organize these points.

In our transition from a paper-based society to an electronic society, the means of producing documents are continually improving; however, to take advantage of the improvements, each of us has to be willing to learn how to use the new capabilities. Word-processing software programs provide the east-to-use features, plus many others.

Organizations need people who can use the capabilities available in the current software programs and new technologies to write and design clear business messages that people are able to understand, interpret and translate into action.

Some of the things that you will need to become familiar with are:

- office equipment and resources
- relevant software applications
- examples of style guides
- organizational procedures

### Using Business Technology

Every organization uses some sort of technology. It is important to know what is available in your workplace and to use it appropriately. You might need to make choices about:

- Business equipment

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- Business software

Most organizations depend on business equipment to operate. The most common piece of equipment in the office is the computer, which is used to input process and output business information. You might also use printers, scanners and photocopiers.

**Printers**

A printer is a device that produces a paper copy of the information displayed on the monitor of your computer. There are many different printers available. The main differences are the speed at which material is printed, the quality of the print, the options available and the cost.

**Scanners**

A scanner is a device that produces a digital version of a hard-copy document. For example, if you scan the hard-copy version of a report into a computer, you can send the information electronically or make alterations before reprinting.

A scanner can be a useful piece of equipment if you are producing a newsletter, catalogue, or any other document containing photographs, illustrations, maps or handwritten material. It can copy a selected image into a graphic file on a computer. This can then be imported into the document you are working on. The image can be re-sized, if you need to make it smaller, or cropped if you only want to keep part of the image.

**Photocopiers**

Photocopying is a process that makes a paper copy of a document, or any other visual image, quickly and cheaply. If an organization needs multiple copies of a document, a photocopier is the most suitable equipment to use.

**What is digital literacy?**

Digital literacy is more than being able to use computers and the internet, it gives you the ability to locate, evaluate, adapt and interact confidently with digital content to advance your personal and professional needs.

**What are the advantages of digital literacy?**

Having skills and knowledge in technology provides many advantages to you both socially and economically and is essential in most types of employment. Using computers and the internet can make day to day tasks easier and faster and also provide instant access to information and people from around the world. These skills and knowledge are more and more important in most types of employment.

Using computers allows you to create records, documents and spreadsheets which can be saved and stored, shared, sent and easily updated Using the internet allows you to:

- save time and money by transacting and communicating online
- access to timely and relevant information, particularly outside traditional business hours for:
  - government services
  - health

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- education
- work/employment
- personal interest areas
- shopping.

- access to improved and more timely online services
- communicating with family and friends who live interstate and overseas.
- With the implementation of the National Broadband Network (NBN) even more opportunities will become available as the amount and speed of online content and services increase.

Operating a personal computer is a fairly straightforward task if you carefully follow some basic processes. The key steps in this process are:

- set up a computer and other devices
- select seating and computer positioning for comfortable use
- activate a computer
- use a mouse
- use a keyboard
- alter the computer settings
- add and remove software
- navigate and manipulate the desk top environment
- open a folder and file, change it and save it
- send and receive an email
- conduct a basic search on the internet
- use a scan to reduce security threats
- use basic peripheral devices
- shut down the computer.

### 1.3 Workspace, Furniture And Equipment Are Adjusted To Suit User Ergonomic Requirements

#### Workspace Set up

The goal of ergonomics is to make work more comfortable and to improve both health and productivity. Many ergonomic problems can be fixed by rearranging, adjusting or modifying existing furniture and tools, so don't be in too much of a rush to go out and purchase the next great ergonomic "THING".

We know that sitting for long periods can have negative consequences for our health, and that regular breaks along with standing for part of your day can help to prevent and relieve aches and pains when they occur. However, often sitting cannot be avoided, at which times it is important to ensure that your office chair is set-up to provide optimal support for your back.

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**To set-up your office chair correctly, follow these simple steps:**

### **Adjusting the Chair Height**

**Sit up straight on your** chair, roll your shoulders up and back and allow your arms to hang loosely by your sides. Make a right angle at your elbow and keep your wrist straight. The underside of your hand should now sit naturally on top of your keyboard. If it is not then adjust your chair up or down to enable your hand to rest on the keyboard. (do not adjust **your arms or hands!**)

### **Other Chair Adjustments**

Adjust the back in or out, up or down, or if the seat has a sliding seat mechanism slide it in or out so that you can feel the lumbar support in the lower curve of your back. It should be both firm and comfortable, while providing support for the natural curve of your back. Ensure the angle of base of the seat is either neutral or tilting slightly forward so as to make sure the front of the chair is not pushing into your thighs.

And remember, no chair, no matter how well its set-up can prevent you from slouching unless you proactively sit with correct posture. The key is to be mindful of your posture at all times, making sure that your spine remains lifted, with your shoulders rounded back.

#### **(a) Steps for setting up your workspace**

Adjust the chair height so that your elbows are at desktop level (roll your shoulders back and relax them first).

b) Sit fully back into your chair, adjust the seat back for good lower back support, and use a lumbar roll if the back of the chair does not support your lower back. If your chair seat has a tilt feature, set it so that you are comfortably supported. If your feet don't comfortably reach the floor or there is pressure on the backs of your legs, use a footrest.

c) Locate your monitor so the top third of the viewing area is at or below eye level. Use monitor stand if required. As long as you can clearly view the screen contents there is no specific distance that you need to be from the monitor.

d) With elbows at the desk level, ensure that your wrists are straight. Use wrist rest if required, and if you have armrests try to adjust them so they support your arms without beings too high or too low.

e) Position the mouse as close as is practical to the keyboard, so that both elbows are directly under the shoulders while working. If this is not possible you may need to consider purchasing a mini keyboard. To reduce stress on the neck when working from paper documents, a document holder can be placed between the keyboard and monitor.

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f) Always either put the phone on loudspeaker (depending on your office environment) or use a phone headset if you need to use the computer while talking on the phone, this will help avoid neck and shoulder strain.

g) Use your mouse pad or another soft surface to pad the edge of your desk. Avoid pressing your hands or forearms against any **desk edge**.

h) Adjust screen brightness and contrast for clear comfortable viewing, and clean the screen regularly. Also remember the 20-20-20 rule: look away from the monitor every 20 minutes to a distance of 20 meters for 20 seconds. This helps avoid eye strain.

Finally and very importantly remember to take breaks regularly preferably every 45 minutes to an hour for 1 or 2 minutes. Go get a glass of water talk to a colleague etc.

#### **1.4 Technology are used according to organizational requirements and in a way which promotes a safe work environment**

In all cases the efficient use of any tool requires some training before the tool can be used efficiently and safely. The efficiency refers to the ability to achieve the desired results or outcomes within an acceptable time frame and a reasonable effort. Assume that a user wants to take a photograph from a digital phone and further assume they have no training. The results could be anything and the time involved could be significant as they fumble and take pictures of fingers that cover the lens.

Safety needs to be considered for the person and the equipment. A camera flash close to the eyes can injure and possibly blind. There is also a consideration of damage to the equipment. More than one phone has fallen from a top pocket into a sink or other body of water; plugging parts of a computer in while the computer is operating has been proven to be damaging to a computer. All these dictate that, before a person is allowed to use a business tool, they must undergo some level of training, and perhaps a refresher level of training for those using the same tool later to remind them of the first set of skills.

There can be no definitive program for every tool in a business, but it is inconceivable that a tool does not require some training. When the tool is acquired a skill set and a training manual or form should be developed, and this will probably be unique to each tool.

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<b>Self-Check 1</b>	<b>Written Activity</b>
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**Answer the following questions:**

1. What factors should be considered when selecting a business tool?
2. Why is training an important consideration when considering a business tool?
3. Describe the safety considerations concerning a mobile telephone.



<b>Instruction Sheet 2</b>	<b>LG24: Process and organize data</b>
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This learning guide is developed to provide you the necessary information regarding the following content coverage and topics –

- Filing and records are identified, opened, generated or amended according to task and organizational requirements
- applying Input devices that are operated according to organizational requirements
- arranging Data is stored appropriately and exit applications without damage to or loss of, data
- establishing Manuals, training booklets and/or online help or help-desks are used to overcome basic difficulties with applications

This guide will also assist you to attain the learning outcome stated in the cover page.

Specifically, upon completion of this Learning Guide, you will be able to

- Files and records are identified, opened, generated or amended according to task and organizational requirements
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Information Sheet-2	Process and Organize Data
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## 2.1 Files and records are identified, opened, generated or amended according to task and organizational requirements

**Data** consist of raw facts, such as customer names and addresses. **Information** is a collection of facts organized in such a way that it has more value beyond the facts themselves.

Turning data into information is a process or a set of logically related tasks performed to achieve a defined outcome. This process of defining relationships between various data requires knowledge. Knowledge is the body or rules, guidelines, and procedures used to select, organize, and manipulate data to make it suitable for specific tasks. Consequently, information can be considered data made more useful through the application of knowledge. The collections of data, rules, procedures, and relationships that must be followed are contained in the knowledge base.

### Characteristics of Valuable Information

In order for information to be valuable it must have the following characteristics, as adapted from Ralph M. Stair's book, *Principles of Information Systems*:

1. **Accurate.** Accurate information is free from error.
2. **Complete.** Complete information contains all of the important facts.
3. **Economical.** Information should be relatively inexpensive to produce.
4. **Flexible.** Flexible information can be used for a variety of purposes, not just one.
5. **Reliable.** Reliable information is dependable information.
6. **Relevant.** Relevant information is important to the decision-maker.
7. **Simple.** Information should be simple to find and understand.
8. **Timely.** Timely information is readily available when needed.
9. **Verifiable.** Verifiable information can be checked to make sure it is accurate.

## Data Processing

### Stages of Data processing

1. Collection of data: data are obtained and gathered from their source
2. Preparation of data: data are made ready for further use. They include *classifying, coding, rearranging of editing* of the raw materials.
3. Input of data: data are passed to the person or department *responsible for processing*

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data.

4. Processing of data: the data are manipulated by *sorting, calculating, updating, tabulating, summarizing*, etc. usually a set of working procedures or instructions are followed.

**5. Output of information:** the end result is produced in a suitable format.

**Data processing** refers to the process of converting data into useful information or performing specific operations on a set of data or a **database**. A **database** is an organized collection of facts and information, such as records on employees, inventory, customers, and potential customers. As these examples suggest, numerous forms of data processing exist and serve diverse applications in the business setting.

Data processing primarily is performed on information systems, a broad concept that encompasses computer systems and related devices. At its core, an information system consists of input, processing, and output. In addition, an information system provides for feedback from output to input. The input mechanism (such as a keyboard, scanner, microphone, or camera) gathers and captures raw data and can be either manual or automated. Processing, which also can be accomplished manually or automatically, involves transforming the data into useful outputs. This can involve making comparisons, taking alternative actions, and storing data for future use. Output typically takes the form of reports and documents that are used by managers. Feedback is utilized to make necessary adjustments to the input and processing stages of the information system.

The processing stage is where management typically exerts the greatest control over data. It also is the point at which management can derive the most value from data, assuming that powerful processing tools are available to obtain the intended results. The most frequent processing procedures available to management are basic activities such as segregating numbers into relevant groups, aggregating them, taking ratios, plotting, and making tables. The goal of these processing activities is to turn a vast collection of facts into meaningful nuggets of information that can then be used for informed decision making, corporate strategy, and other managerial functions.

**In general, the main activities in data processing are as follows:**

- Monitoring and controlling of inputs
- Checking (manual editing) and coding
- Data entry and verification.
- Computer editing and coding.
- Storage and security.
- Tabulation.
- Calculation of sampling error and additional data analysis.

### **Data Organization**

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Data organization is critical to optimal data use. Consequently, it is important to organize data in such a manner as to reflect organizational operations and practices. As such, careful consideration should be given to content, access, logical structure, and physical organization.

- Content refers to what data are going to be collected.
- Access refers to the users that data are provided to when appropriate.
- Logical structure refers to how the data will be arranged.
- Physical structure refers to where the data will be located.

<b>Self-Check 1</b>	<b>Work task</b>
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1. Write a one page report to your manager detailing what procedures you would recommended introducing as a result of the below situation.

Sally was told that she had to visit a client to discuss a function that was not possible over the telephone or using communication software such as Skype. As the client was in the country she would be provided with accommodation, a business car and a mobile phone to use while she was away. As there was a shortage of telephones she would borrow the sales manager’s phone as he was having an operation and was not allowed access to a phone. She was given the items without any training, instruction, or opportunity to test the equipment. She discovered later that the batteries were dead and as she did not have a charger for the phone so she had to buy a new set of batteries using her own money.

On the second day, while waiting for her client, Sally played with the phone looking for games. What she discovered were photographs of men and women in pictures that were clearly not of a business nature. She was very shocked and decided to sue the business for sexual harassment.



<b>Self-Check 2</b>	<b>Written test</b>
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1. Define data processing
2. How computers process data?
3. What are the advantages and disadvantages of computer data processing over manual data processing?





<b>Instruction Sheet 3</b>	<b>LG25: Maintain technology</b>
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This learning guide is developed to provide you the necessary information regarding the following content coverage and topics –

- Using *technology consumables* are identified and replaced in accordance with manufacturer's instructions and organizational requirements
- *Carrying out Routine maintenance* and/or arranged to ensure equipment is maintained in accordance with manufacturer's instructions and organizational requirements
- Identifying Equipment faults accurately and action is taken in accordance with manufacturer's instructions or report fault to designated person

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, you will be able to

- Use *technology consumables* are identified and replaced in accordance with manufacturer's instructions and organizational requirements
- *Carry out Routine maintenance* and/or arranged to ensure equipment is maintained in accordance with manufacturer's instructions and organizational requirements
- Identify Equipment faults accurately and action is taken in accordance with manufacturer's instructions or report fault to designated person

**Learning Instructions:**

10. Read the specific objectives of this Learning Guide.
11. Follow the instructions described in number --- to --.
12. Read the information written in the “Information Sheets ---”. Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
13. Accomplish the “Self-check ---” in page \_\_\_.
14. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-check ----).
15. If you earned a satisfactory evaluation proceed to “Information Sheet ---”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #----.
16. Submit your accomplished Self-check---. This will form part of your training portfolio.
17. Read the information written in the “Information Sheet ---”. Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
18. Accomplish the “Self-check ---” in page \_\_\_.  
Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-check ---).



<b>Information Sheet-3</b>	<b>Maintain Technology</b>
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**3.1 Used technology consumables are identified and replaced in accordance with manufacturer's instructions and organizational requirements**

**Technology consumables**

Consumable is any item that is consumed by the business tool in use, and without the consumable the tool becomes useless. A photocopier requires power, paper, and toner to produce a copy. Without these items copies cannot be made and the efficiency of the business suffers. It is therefore very important to ensure that there is a sufficient supply of all consumables, they are available, and users have sufficient skills to be able to install them.

The business register will record all details of the asset, including the consumables with a description and part number if applicable. It is not enough to list the model of the tool, but also the part number as this will ensure the correct item is supplied. Not all consumables are user replaceable. In some photocopiers the toner is replaced by technicians, while in others the user is expected to replace them. In most cases there are consumables that will need replacing to ensure the tool is fully functional

**Who has Access Rights?**

Who has the right to dispense the consumable? As these items are assets and represent a cost, they must be controlled to ensure that the item is used in the asset. In some cases the cost will need to be allocated to a department. In other cases the use will need to be recorded to ensure that reordering takes place when necessary.

**What to Order?**

In some cases there will be the manufacturer's brand and there will be aftermarket or alternatives. Management will need to make a decision as to which type of product the company is going to use. There are usually cost advantages associated with using the aftermarket, but they may void warranty and there may be performance issues. Regardless of which choice management decides, the decision needs to be recorded.

**Supplier**

The supplier of consumables should be identified, either in the register or in the stock list. With some business items there are many suppliers and the quality may not be significantly different. In the case of business tools there may only be one supplier so that it is important to identify the supplier to they can be easily found. This is especially true if an aftermarket

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supplier has been chosen and the contact details are unknown or unclear. It is also important to know the supplier should there be any issue with the performance of the part and there is a warranty issue.

## Training

There is also the issue of training. In some cases a local expert will install the item to ensure that it is installed and installed correctly. Installing paper in a photocopier may be obvious, while the removal of the back of a mobile phone to replace the battery may be a little more challenging. As well as the physical process, there may be operational considerations, such as turning off the phone before removing the battery.

The process and procedure for replacement for each of the consumables for each of the tools needs to be documented and stored in an accessible location. In some cases this documentation will be written in-house to explain what and how to make the changes. In other cases it may be a hint list that is used in conjunction with the instructions on the tool.

## Documentation

Any documentation that was provided with the tool and any notices or documents that were created in-house to support the tool need to be stored in a known and accessible location.

## Ordering

In any order process there is a lag time between the order being made and the order arriving. As consumables are a stock item, the quantity to be ordered must consider the lag time, the normal consumption that will occur over this time, and the reliability of supply. There is also the question of who is allowed to order in the business. These are standard business decisions relating to the purchase of any item for the business, and the process of ensuring there is an adequate supply of consumables should follow the same process.

### **3.2 Routine maintenance is carried out and/or arranged to ensure equipment is maintained in accordance with manufacturer's instructions and organizational requirements**

## Maintenance

Most business tools require some type of maintenance, ranging from the simple in-house operation to complete machine services that requires technicians. Maintenance is the process of preparing a tool for operation and ensuring that it is in a suitable operating condition to minimize the possibility of future failure. In most cases there is a set of stated procedures for each tool that needs to be performed on a regular basis. It is impossible to identify all the possible procedures that all tools may require, but it is important to be able to identify the various common events that will be done by employees and the procedure to be followed when outside assistance is required.

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## In-House Maintenance

The most common type of maintenance required for all business tools relates to the supply of consumables. These are the items or materials that the tool consumes during its normal operation. Cars consume petrol, copies consume paper and toner, facsimile machines consume paper and toner, and there are many others. Often these items involve an order process so a procedure needs to be established where a person is allowed to order the consumables and a source of supply has been established. Although the detail for each tool will be different, the process involved is the same and once established for one tool can be followed for a range of tools. To demonstrate the process, we will apply it to a photocopier as it will cover the wide range of considerations.

## Repairs

The repair process returns a faulty tool into an operational condition. Something is broken on the tool and the repair process makes the machine functional again. Unlike maintenance repairs are not predictable and cannot be planned. There may also be an element of time pressure as the tool is not available and it may be needed. Repairs could be considered as simple as replacing the batteries in a camera, to the complete replacement of the tool because the required repairs are not economically feasible.

## Who Does the Repairs?

If a machine does require repair there will need to be a record maintained of the relevant service authority. This can be in the tool register or alternately a list of authorized repairers can be kept. Contact names, numbers and people can be recorded. A database in Excel can be kept that will allow the relevant people to be contacted and arrangements made.



## Repairs v Maintenance

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In most cases repairs imply some immediacy where action needs to be taken promptly to ensure the tool is in working order. For example, a broken tail light on a motor car may make the car unroadworthy. Likewise it is foolhardy to drive a car without a serviceable spare tyre. This elevates the urgency of the repair and also increases the importance of reporting the issue to ensure that prompt action is taken.

In other cases a repair may not be immediate and the tools are still serviceable, although not as efficient before the damage. A mobile phone may have a cracked screen that makes the image hard to read but is still usable.

Maintenance and repairs without a time pressure component can be arranged to suit the needs of the business and match with the time available for service repair times. Users may be willing to suffer some inconvenience in return for use of the tool.

### **Establish an Expert**

Usually this means allocating the responsibility of the machine to a single person who has authority to spend the company's money on service calls and other items. They will often be versed in a wider range of activities on the tools than others.

### **Consumables and Service**

When considering the copier the expert will be able to:

- Order paper, toner and other consumables
- Decide if a service call is required and to make the service call
- Provide advice on the less used functionality
- Decide on what a required common user skill is and what is not.

### **Common Skills**

For example the expert may be able to change the toner or call a technician to do so if appropriate, but the minimum set of skills for each user will be:

- Fill the paper bins from the storage area (and paper access may require the expert)
- Remove common paper jams
- Perform standard copying as relevant to the machine.

These skills would form part of the training program that all users would need to attend before they are allowed to use the copier. Some paper jams are more complicated and it is obviously

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in the best interests of the business to be able to fix them without the inconvenience and possible cost of waiting for a service call and a copier remains unavailable until the service call.

### **Local Expert Maintenance**

In some machines refilling the staple holder requires a higher level of skill than refilling paper and this is the responsibility of the expert. Documentation may disclose a set of known fixes for the less common problems. The always reliable power off and power on (power recycle) can fix a wide selection of problems on all electronic equipment, but it is not something that should be applied by ten individual users that suddenly discover the machine is not working.

### **Cleaning?**

As well as these functions which are on demand, there can be regular maintenance functions that can be performed by in-house staff with a little training. Copiers need the platen cleaned. This is a plastic or glass area that can get dusty or dirty from fingerprints and dirty hands. A spray with a common glass clear is all that is required, but this should be done on a regular basis to maintain a high quality of copying.

Some machines have similar internal cleaning procedures which are simple and straightforward, but have to be regularly performed. A failure to do these procedures will not lead to machine failure, but there can be a noticeable impact on quality, which increases as the time between cleaning increases.

### **Action to be taken when a service call is required**

Notification that a service call has been made is always useful to ensure staff that action has been taken and avoids a phone call from each user that wants to use the machine.

### **Advance Warning**

Advance warning that the machine will not be available when routine maintenance is required is useful to allow users to plan for lack of access and minimize disruptions to the business. Advice as to when the machine will be available is also useful.

### **3.3 Equipment faults are identified accurately and action is taken in accordance with manufacturer's instructions or report fault to designated person**

#### **Fault Reporting**

Details of the fault are helpful for technicians to arrive at a solution faster. In this case details mean issue detail. Complaints such as “machine not working” or “cannot copy” do not provide any helpful information. It is always the case that detail is helpful e.g. “machine jams only when

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depleting on A4” directs the technician’s attention to a particular area. Documentation may be necessary that encourages detail or the expert collects the details.

Some manufactures have a standard form that is designed to ensure the correct and most complete data is collected to enable the problem to be solved as soon as possible. This could include details such as:

- Person’s name
- Contact details
- Email address
- Sequence of events
- Asset name
- Model
- Finance officer
- Problem description
- Service contract number
- Serial number of machine
- Urgency of the problem
- Access hours.

### **Fault Recording for the Business**

It may be useful to maintain a record of fault types to use when deciding on the future of a machine. Repeating faults may indicate that a tool is being used beyond its specifications and that a more robust model is required. Fault repeating may also indicate that the repair process has fixed the symptom – paper jamming – but not the cause, which is a faulty pickup roller in the paper bin. Some companies do not maintain records of faults but only action taken and they may not investigate for a deeper problem.

### **Consumables**

Consumables are the items or resources that are consumed in the normal usage of the tool. Photocopiers will consume paper and toner and once depleted they will not operate with them being replaced. Mobile phones use the power from batteries, and these can be recharged. However, eventually the ability to store power will diminish and the batteries will be useless. Where are the consumables stored? Toner cartridges will need to be accessible and readily available when the cartridge needs to be replaced. In most cases this will require a secure area where access is controlled. Paper can consume a large space, depending on the amount of paper used and the number of machines.

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There is also the recording process to ensure that items consumed are reordered. Once a toner cartridge is removed and installed in the copier, a procedure is required to replace the item in the storage area.

Just as in any order process, it is also important to have a detailed description of the item to be ordered, and the description should relate to the item and not the use. Batteries size AAA is a much more useful description than batteries for Nokia 343. There is often the question of using items from the original manufacturer, HP cartridges in a HP printer or buying the cheaper generic brands. Management will need to identify which suppliers are to be used and also which of the products.

**What to order?**

In some cases there are different sizes of the same item. A copier cartridge can print 4,000 copies or the large capacity with the same physical size can be 10,000 at a higher price. Policies need to establish which size is the standard order. Order histories may indicate that items with large capacity or larger orders to get volume discount is justified.

**Who can order?**

Will these items be ordered through the same process as is used for all other items or on a needs basis? In large departments there may be an order department that orders items. Consumables may be ordered through a different process because the need is high and they may be used in only one area. This is a management decision that determines the process.

**Documentation**

Where is tool specific documentation stored? Some tools have user documentation e.g. how to make a copy and technical documentation on how to fix a paper jam. These may be stored in different locations or they may be electronic so the business can make copies and keep a full set in both locations. It is important that any technical documentation is accessible to assist in problem solving. Documentation storage may be overlooked as using the documentation is an exception and only occurs when there is an issue with the tool. If all goes well the documentation may never be read past the install process. However, when it is required it is often required in a hurry and needs to be made available and a process to ensure it is returned, just as the tool must also be returned.

**External Support**

What are the contact details? Telephone numbers, machine details, account numbers, will be required. The machine details can include model number and may even include the serial number. These may be easily discovered from the machine, but may be hidden on the back or in areas that need a touch and a fair amount of flexibility to discover. It is useful to record these

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in an accessible location when and if a service call is to be made. In some cases businesses will have support contracts with numbers and this will assist in lodging a service call in an efficient and prompt manner.

In large organizations additional information may include the physical location of the copier as it may be in a different building or possibly a different suburb. Where service calls are lodged from a central location to the servicing authority, the technician will need to know where the copier is located so they can call on the location where the copier is and not go to the central address. Again, in large organizations, they may need a guide to take them to the copier's location so an appointment with the technician is necessary to ensure there will be someone available to take the technician to the copier and guide them back to the street. Element 3: Maintain technology 42 © ASEAN 2012 Trainee Manual Use common business tools and technology

Who is responsible or authorized to contact the external support organization? If there is a charge for the service there will need to be an approval process to allow the call. It is also silly to have several people from within the business calling about the same problem on the same tool.

### Passwords

Some tools have passwords that deny access to the tool or some function within the tool. The copier may have passwords for each department and another password that restricts access to the management of the copier, and the setup. Some tools require passwords to be changed on a regular basis and users must be created to devise new passwords without duplicating an earlier version. It is obviously important that the management passwords are recorded and secured. The password is designed to control access so if the password becomes public knowledge it is useless as a password and quickly becomes a passport.

### Maintenance in an IT environment

Some items requiring maintenance in an IT environment would be:

- Printers- Printouts may be streaky or faded. The printer may need either cleaning or new cartridge.
- Monitors- Fingerprints may make the text difficult to read.
- PC's- A PC may not boot correctly. In investigation required and possible re-installation of the operating system.
- Peripherals- A scanner or bar code reader may not be functioning properly.

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- Floppy disk Drive- The system may not read floppy disks. The drive may need cleaning.
- Replacing paper- Printers, photocopiers and fax machines may run out of paper.

### Precautions

Precautions are guidelines to be followed to prevent damage to equipment or injury to people. The following are very important precautions:

- Before cleaning any electrical equipment make sure that it is switched off and unplugged from the mains.
- Allow certain equipment, such as monitors and laser printers, to cool down and lose their capacitance (charge) before cleaning them for at least 30minutes.
- When cleaning inside the PC, or handling parts from a PC such as hard disk or circuit boards, you should earth yourself using antistatic wrist strap.
- Always refer to the manufactures manual before attempting to clean any equipment, because improper cleaning or maintenance may be dangerous and also may invalidate your warranty.
- Some equipment such as power supplies and monitors use voltages and therefore should only be maintained by specially trained people. It could be dangerous for anyone else to open these up for maintenance.

### Cleaning environment

#### Why clean?

Dust needs to be removed because it acts as an insulator that prevents air from circulating over or through the components and this can cause overheating. If dust contains conductive particles it can also cause a short circuit, which can damage components or even cause a fire.

#### Removing Dust

Dust can be removed using a household vacuum cleaner with an appropriate attachment, although it is much easier to use a purpose-built computer vacuum cleaner or keyboard cleaner.

#### Residue from hands

The human skin produces residues that cling to surface of the computer hardware we touch, which can be removed with liquid cleaners. However, use only specifically designed cleaners for cleaning computer equipment. Unsuitable cleaners may:

- Cause dangerous fumes

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- Damage the plastics used in computer hardware
- release ozone-damaging gases

**PC Maintenance Schedule:**

Here is a schedule for maintaining your computer, it is highly recommended that you follow these routines to have a healthy computer.

**Recommended Maintenance Schedule**

Virus Scan
Adware / Spyware Scan
Data Backups
Antivirus Software Updates
Adware/Spyware Software Updates
Windows Updates
Office Updates
Disk Cleanup
Deleting Temporary Internet Files, History, Cookies
Disk defragment

**Summary**

- All tools require maintenance
- Some will require repairs
- Most tools have a consumable element and insufficient consumables will affect the use of the tool
- Maintenance will render the tool unavailable and this must be planned
- Consumables must be purchased in accordance with business procedures
- Consumables need to be monitored to ensure there is a sufficient supply

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- Training may be required to replace consumables
- Documentation and access to relevant documentation can be very important

<b>Self-Check 1</b>	<b>Activity</b>
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**Answer the following questions:**

1. Identify all items that could be identified as business tools.
2. Construct a register form that will cover all tools identified in question
3. Fill in all details with the information from the case.
4. Identify the items that should have a training plan.
5. Pick three of the tools listed in question one and identify any key issues that should be considered about the use of the tool and that should be explained to the user.
6. List any procedures or steps that management should introduce in the future to improve the operation and management of business tools.

Operation sheet	Written test
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Competency: Clerical Support Technology

Test on Lo1: Selecting and using business technology

Name: \_\_\_\_\_

**I. True or False**

- \_\_\_\_\_ 1. Clerks perform office and administrative support activities.
- \_\_\_\_\_ 2. Clerical activity involves operation of office technologies.
- \_\_\_\_\_ 3. Clerks can not specialize in one type of clerical work.
- \_\_\_\_\_ 4. Clerical staffs are expected to be familiar with basic office software and hardware.
- \_\_\_\_\_ 5. Availability of Software and hardware and skill of using them is important for clerks.
- \_\_\_\_\_ 6. Training manuals are important to learn how to operate specific equipment.
- \_\_\_\_\_ 7. Printers, Scanners, photocopiers can be incorporated in one serves for multi use.

**II. Choose**

- \_\_\_\_\_ 1. The computer type that has that has the hard drive, screen, keyboard and mouse all together is\_\_\_\_ A) Desktop B) laptop C) all D) none
- \_\_\_\_\_ 2. The equipment used to convert hard copy into digital (electronic) is\_\_\_\_  
A) Fax B) Printer C) Scanner
- \_\_\_\_\_ 3. The software used for financial transactions is\_ A) Ms word B) Spread sheet C) Anti virus

Test on Lo1:

**I. Choose**

- \_\_\_\_\_ 1. The area where clerks can be employed are\_  
A) Government B) Finance C) Business D) all
- \_\_\_\_\_ 2. Which one is not adjustable for comfortable use? A) Desktop B) Laptop C) All
- \_\_\_\_\_ 3. Which of the following helps to reduce size of files.? A)CD B) Flash C) Zip
- \_\_\_\_\_ 4. Which of the following is modulator/demodulator? A) Scanner B) Fax C) Modems
- \_\_\_\_\_ 5. The system used for holding meeting without actual travel are-  
A) Video B) virtual conferencing C) all D) none

**Lo 2: Processing and organizing data**

- \_\_\_\_\_ 1. Raw fact is\_ A) Data B) Information C) logic
- \_\_\_\_\_ 2. Accurate information is A) Free of error B) dependable C) Economical D) flexible
- \_\_\_\_\_ 3. Which of the following is the first stage of data processing?  
A) Collection of data B) Processing of data C) output

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\_\_\_\_\_ 4. Which of the following are input mechanism?

- A) Keyboard B) Scanner B) Camera D) all

\_\_\_\_\_ 5. Which of the following is correct step?

- A) Data → information → Process B) information → Data → Process C) Data → Process → information

### Lo3: Maintain Technology

\_\_\_\_\_ 1. The type of maintenance performed on a regular basis is\_

- A) Routine maintenance B) Corrective maintenance C) Breakdown maintenance

\_\_\_\_\_ 2. Which of the following equipments are dangerous and thus, should be maintained by specially trained person?

- A) Monitor B) Power supply C) mouse D) A & B

\_\_\_\_\_ 3. When cleaning electrical equipments\_

- A) Switch off electric power B) unplug electric cables C) all D) none

\_\_\_\_\_ 5. The effect of dust on computer is\_\_

- A) Cooling B) Overheating C) all D) none

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