

Question Bank and its solutions

1. Computer essentials for business

In an age of booming technology, running a business without computers is like trying to breathe without lungs. Like it or not, technology has become an integral part of the way business is done. Even if you perform services or provide products which are not technology related in and of themselves -- such as dry cleaning and hairstyling -- you may find that without a computer, it's difficult to place orders with suppliers or pass information to your accountant.

Inventory Management

Retail and wholesale business have increasingly come to rely on computers' advanced ability to keep track of inventory and assist in ordering more when stocks get low. In fact, one of the central approaches to the success of retail giant WalMart was real time ordering in which WalMart's computer systems place orders for goods as they are needed. This allowed them not to carry too much or too little of any particular item as well as to save on the manpower required to manage much of the supply chain. However, businesses of all sizes use inventory management and point of sales systems to do smaller scale versions of the same thing.

Presentations And Documents

While it's still possible to find a typewriter at a garage sale, the days of typed papers and documents are dead and gone. Word processing is a must in today's business environment. Not only are computers the medium for document creation, but the ability to email and share documents electronically has become central to the editing, approval and delivery process. Similarly, presentations and reports are commonly delivered in electronic slide show presentations or via webinars. Creators must use programs, such as PowerPoint, to create them as this is the standard for modern business.

Electronic Communications

A business not involved in electronic communications -- particularly email -- closes off one of the largest communication channels today. Customers, clients, vendors and business partners use email to make contact and transact business. Some companies go beyond email and actually encourage the use of in-house instant messaging as a method of communications between employees and departments.

Internet Access

Internet access is a business' communications lifeline. Internet-enabled computing allows you to receive orders from customers, place orders with suppliers, research businesses, explore business ideas, communicate with government agencies and even manage your business' banking. In addition, online presence with at least a website is critical to legitimizing a business. Many companies go further and participate in social networking sites for marketing and branding purposes.

Multi-site Networks

If your business has more than one site or branch, then multi-site networking provides tremendous benefits for accounting, standardizing and managing your multi-faceted operation. Many companies use point of sale systems to ensure standardized operations within a chain of stores or sites. Companies that sell similar products or services in multiple locations find that computer systems help them keep track of revenues, costs and their supply chain from a central office. This allows a centralized management team to get reports on any or all sites and get a macro-view of the business when needed.

Tips: You can write more examples where you think application of IT is used in real time world. It is used in various functions like HRD, Marketing, finance etc . Relate to your work and organization.

2. Different types of computing system – Batch / Online + Real time ?

Computer systems may be classified into the following groups:

1 - The **supercomputers** are extremely fast computers that are used in scientific research for their ability to do large amount of calculations and store large amount of data. One use of these computers is weather forecast because of the large amount of calculations involved.

2 - **Mainframe computers** allows several thousands of users at any time. They are used by government companies, airline companies for bookings, insurance companies and banks.

3 - **Personal computers** are for personal use at home or at work. In what follows, the different types of personal computers are discussed.

1 - Desktop

It is a computer system that is used at home, at work, in schools, universities... It consists of a monitor and a casing inside which the power supply, the CPU, the motherboard and many other devices are located.

These computers may be used for creating, editing, printing and sending documents. They are also used to communicate using the vast network of computers spread all over the world called the internet. They are used to play music, videos, games, and learn new languages, mathematics and many other scientific subjects.

2 - Laptop

A laptop has similar computing power as the desktop but has a set of electrical batteries that allows it to be used in cars, parks, airplanes. They also have a smaller weight and are therefore portable. Besides being used to surf the net, send e-mails, they can also be used to create, edit and send documents, excel sheets.

The portability and the computing power of laptops make them suitable for presentations, using for example power point, in conferences and forums. They also have enough power to play games, read and write CD's and DVD's.

3 - Tablets PC

A tablet PC has the capabilities of a laptop but is smaller in size and does not have a keyboard. It has a touch-screen that allows using fingers or stylus to input instructions and interact with the machine. The keyboard or mouse are not needed. It is light and small in size and is therefore easy to transport.

Modern Tablet PCs allow you to use the internet to look for information and news, watch online videos, read e-books, communicate with your friends, shop online. Tablets are fitted with batteries that may last up to 10 hours. Major advances in technologies such as battery life, smaller size yet larger memories, touch-screen recognition, and wireless internet access have all contributed to make the use of tablets PC more efficient and practical.

4 - Smart phones.

Besides making telephone calls, a smartphone runs on an operating system and has the ability to let you send and receive e-mails, browse websites on the net and read documents.

About Batch processing and Online processing and real time

Batch processing is a technique in which a number of similar transactions to be processed are grouped (batched) together and then processed. Processing happens sequentially in one go without any interruptions. Many financial systems use this kind of processing. The main reason for this is

- This method uses technological resources very effectively, especially where large numbers of transaction are involved.
- Many calculations can actually be done centrally and outside business hours like interest calculation, cheque clearing etc.

How does batch processing work

Batch processing system work in the following steps:

- Forms/data/documents needed for processing are collected during business hours.
- At the end of the day, this data is collected from all users, sorted and arranged in batches.
- All the data is submitted to the computer for processing in sequential order.
- Once the processing is complete, the data is again sorted in a sequential order with all calculations updated.
- Finally, the master database is updated with the results of processing.
- The new file will be available to all users for the next day's operation.

Online Processing : Batch processing is advantages and economical when large volumes of data is to be processed. It is not suitable for small volume of data. Also, in case where immediate response is required, batch processing is not desirable.

Online processing was developed to overcome difficulty faced in batch processing. In many systems it is necessary that transactions should immediately update the master data file, like railway reservation system, ATM, Prepaid Utilities like mobile phones, etc. When a ticket is booked at one counter, the database must be updated immediately so that any other counter does not accept another booking against the same seat.

How Online Processing Works:

- Data is fed to the central database
- All processing that is required happens instantaneously.

When a person updates a record, it is locked for other users till the first person completes his transaction. It is called record locking

Real Time computing

Real-time computing (RTC), or reactive computing describes hardware and software systems subject to a "**real-time** constraint", for example operational deadlines from event to system response.

There are three major components and their interplay that characterize real-time systems. First, 'time' is the most precious resource to manage in real-time systems.

Tasks must be assigned and scheduled to be completed before their deadlines. Messages are required to be sent and received in a timely manner between the interacting realtime tasks. The correctness of a computation depends not

only on the logical correctness but also on the time at which the results are produced. Second, reliability is crucial, since failure of a real-time system could cause an economical disaster or loss of human lives. Third, the environment under which a computer operates is an active component of any real-time system. For example, for a drive-by-wire system it is meaningless to consider on-board computers alone without the automobile itself.

Q.3 Role of Hardware in computers and selecting which is good for business?

Ans

You should specify the specification/configuration of a basic computer and its functions.....

Refer below

A standard fully featured desktop configuration has basically three type of featured devices

- 1. Motherboard**
- 2. Input Device**
- 3. Output Device**
- 4. Storage Device**
- 5. Memory**

Motherboard

A motherboard or main circuit board is the physical arrangement in a computer that contains the computer's basic circuitry and components.

Input Devices

There are several ways to get new information or input into a computer. The two most common ways are the **keyboard** and the **mouse**. The keyboard has keys for **characters** (letters, numbers and punctuation marks) and special commands. Pressing the keys tells the computer what to do or what to write. The mouse can be Two button, three button, track roller type, mechanical or optical. It facilitates easy movement of cursor on the video screen and selection. A **touchpad** (generally on laptops) allows you to drag your finger across a pressure sensitive pad to make the pointer on the screen imitate the movement and press to click. A **scanner** copies a picture or document into the computer. Another input device is a **graphics tablet**. A pressure sensitive pad copies the movement of a special pen on pad onto screen. The tablet and pen can also be used like a mouse to move the cursor and click. Latest advent in technology has allowed input through microphone also

Output Devices

Output devices display information in a way that can be understood. The most common output device is a **monitor**. It looks a lot a like a TV and houses the computer screen. The monitor allows to 'see' what user and the computer are doing together. **Speakers** are output devices that allow the sound from the computer to be heard. A **printer** is another common part of a computer system. There are various types of printers. Wheel Printers, Drum Printers, Dot Matrix Printers, Inkjet printer, Laser Printers. Laser printers run much faster but are expensive to operate. **Ports** are the places on the computer case where various peripheral devices can be plugged. The keyboard, mouse, monitor, and printer all plug into ports. There are also extra ports to plug in extra hardware like joysticks, gamepads, scanners, digital cameras and the like.

Storage Devices

Storage Devices are meant to store programs and data for retrieval and use when required by the CPU. Computers use disks for storage: hard disks that are located inside the computer, and floppy, compact disks and pen drives that are used externally. Magnetic tape are also used in some places but are slowly getting obsolete because they are too slow. In addition, they are limited to sequential access. Thus tapes are more suited for storing files, like video recordings which are rarely accessed except in sequential fashion.

Hard Disks

Computer uses two types of memory: **primary memory** which is part of the CPU and **secondary memory** that is stored outside the CPU. Primary memory holds all of the essential memory that tells the computer how to be

a computer. Secondary memory holds the information that user stores in the computer.

Inside the hard disk drive case are circular disks arranged in a stack (one over the other) that are made from polished steel. Within the disk are tracks. A column of tracks (say 5th track on each of the disk in the stack) is called **cylinder**. Tracks are further subdivided into **sectors**. (all this arrangement is for convenience of address location when retrieving data. Within the hard drive, electronic reading/writing device called the **heads** pass back and forth over the cylinders, reading information from the disk or writing information to it. Hard drives spin at 3600 or more rpm (Revolutions Per Minute).

Today's hard drives can hold a great deal of information - 80GB hard disks have become the norm for PCs!

Floppy Disks

Floppy disks are the smallest capacity storage medium, holding only 1.44MB of information. A floppy disk is a thin plastic disk that is coated with microscopic iron particles on one surface. It is encased in a 3 ½ inch square semi hard plastic jacket for ease of handling and storing. This disk spins @ 300 rpm and information is retrieved or transferred from/to it by a head in similar fashion to hard disk.

Compact Disks

Instead of electromagnetism, CDs use **pits** (microscopic indentations) and **lands** (flat surfaces) to signify '0's and '1's much the same way floppies and hard disks use magnetic and non-magnetic spaces. Inside the CD-Rom is a device that emits laser beam onto CD and reads the reflected beam off the surface of the disk. The reflection off the *pit* and the *land* are different. The pattern of reflected light from pit and land creates a code that represents data.

CDs usually store about 700 MB. This is quite a bit more than the 1.44MB that a floppy disk stores. A DVD or Digital Video Disk holds even more information than a CD, because the DVD can store information on two levels, in smaller pits or sometimes on both sides.

Pen Drives

Pen Drives are small (2.5 – 3 inch long) non moving kind of storage devices that can be kept in pocket like a pen and thus derived its name. They have redefined the data portability. These are devices which can carry as much as a DVD and yet so convenient to carry. The data can be stored and

erased 100s of times over and does not require any special devices for reading or writing. They can be connected to external ports and used.

Memory

1. **Ram & Rom (Explained above)**
2. **PROM (Programmable Read Only Memory)**

A variation of the ROM chip is programmable read only memory. PROM can be programmed to record information using a facility known as prom-programmer. However once the chip has been programmed the recorded information cannot be changed, i.e. the prom becomes a ROM and the information can only be read.

3. **EPROM (Erasable Programmable Read Only Memory)**

As the name suggests, the data on Erasable Programmable Read Only Memory, can be erased and the chip reprogrammed to record different information using a special prom-Programmer. When EPROM is in use, information can only be read. Information remains on the chip until it is erased.

Choosing a hardware for business

With so many options available, choosing computer hardware for your business can be difficult.

Assessing computer hardware needs

To assess your needs, look at how you intend to use computers in your business. For example, consider:

- the tasks you plan to computerise, eg record-keeping, payroll, invoicing, advertising
- basic business requirements, eg networking equipment, operating systems or software
- your business or industry specific requirements, eg web servers for e-commerce businesses

Different types of businesses will generally have different **computer hardware needs**. A personal computer may be sufficient for a small start-up, but a growing business may need a computer set up specifically to meet its evolving business needs.

There are other **key things** to consider when choosing the right hardware components, such as:-

Compatibility

Make sure any new or replacement components are compatible with your existing computer equipment, some of which may need upgrading. Look carefully at the overall costs, including if it might be cheaper to simply install a whole new system.

Security

Theft of computer hardware from businesses is a risk. Laptops and other portable devices are easier to steal, but internal storage devices such as hard disk drives or solid state storage drives can also be at risk for the business data they contain.

It is important to **protect** both hardware and data. You should consider implementing:

- physical security measures, such as security cables, locks and cages
- measures to secure your data, such as data back up in a second location and installing firewalls, anti-virus and intrusion detection software
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Longevity and planning for the future

You should have a long-term IT strategy that takes into account any future changes in your market, your employees and your products or services. If possible, integrate hardware and software strategies in your business.

Replacement and disposal of old hardware

Life expectancy for some computer hardware parts is three to four years. Even if hardware doesn't fail, it may become too old to perform adequately for your needs. Many businesses work on a replacement cycle of about three to four years for desktop PCs and five years for servers.

Redundant hardware must be disposed of in an environmentally sound way. In some cases, the manufacturer can arrange free collection from you. Retailers or suppliers may charge you to dispose of the equipment.

When disposing of old computer hardware it is important to properly delete any **confidential data**, either by securely wiping the data or removing and physically destroying the hard disk drives data is stored on.

Keep a register of your hardware

Keep a list of purchase dates and cost of hardware, which will be helpful for accountancy, tax and insurance purposes.

4. Software types and languages for Business

Software which contributes to the control and performance of computer system is called system software eg: Operating Systems, Assemblies etc. One major type of system software is Operating System. This tells the computer how to use its own resources. Application software does specific job for the user, such as solving equations, payroll etc. In other words application software tell the computer how to accomplish specific tasks for the user. Application programs are provided by the computer manufactures or suppliers.

System Software – is a set of instructions that initialize the machine so as to make it operational. System software may or may not be portable across various types of systems. Some system software's are proprietary in nature. They can be used only on a specified hardware. System software for mainframes cannot be interchanged across systems. But systems software on a lower end system is developed in such a way that it can be easily ported across various platforms. System software also includes utility programs like language translators, interpreters, compilers, system loaders, link editors, system libraries, security software, etc. These are written by specialized software programmers called system programmers.

Application Software – A computer running only on system software is not useful as it runs to make the computer operational. Application software is required to make the computer useful to people. Application software is written to do almost all imaginable tasks. A particular Application Software is a set of instructions that help the user to get solution to specific problem. Application software is a generalised set of instruction that can be used to do certain specific tasks like word processors, payroll software, accounting packages etc. Application software is mostly written in such a way that it can be put to use by a vast number of people. Some of the advantages of application software are:

Note:

Refer to the notesAnswer book for the question bank 2010 by Dcosta – Page 88-89.

One can give a lot of examples.

Different languages in computer. There are many such

1. Java

Java uses a **compiler**, and is an **object-oriented language** released in 1995 by Sun Microsystems. Java is the number one programming language today for many reasons. First, it is a well-organized language with a strong library of reusable software components. Second, programs written in Java can run on many different computer architectures and operating systems because of the use of the JVM (Java **virtual machine**). Sometimes this is referred to as code **portability** or even WORA (write once, run anywhere). Third, Java is the language most likely to be taught in university computer science classes. A lot of computer science theory books written in the past decade use Java in the code examples. So learning

Java **syntax** is a good idea even if you never actually code in it.

Java Strengths: WORA, popularity

Java Weaknesses: Slower than natively compiled languages

2. C

C is a compiled, **procedural language** developed in 1972 by **Dennis Ritchie** for use in the UNIX operating system. Although designed to be portable in nature, C programs must be specifically compiled for computers with different architectures and operating systems. This helps make them lightning fast. Although C is a relatively old language, it is still widely used for system programming, writing other programming languages, and in embedded systems.

Strengths: Speed

Weaknesses: Memory management can be difficult to master

3. C++

C++ is a compiled, **multi-paradigm language** written as an update to C in 1979 by Bjarne Stroustrup. It attempts to be backwards-compatible with C and brings object-orientation, which helps in larger projects. Despite its age, C++ is used to create a wide array of applications from games to office suites.

Strengths: Speed

Weaknesses: C++ is older and considered more clumsy than newer object-oriented languages such as Java or C#.

4. PHP

PHP uses a run-time **interpreter**, and is a multi-paradigm language originally developed in 1996 by **Rasmus Lerdorf** to create dynamic web pages. At first it was not even a real programming language, but over time it eventually grew into a fully featured object-oriented programming language. Although PHP has been much criticized in the past for being a bit sloppy and insecure, it's been pretty good since version 5 came out in 2004. It's hard to argue with success. Today, PHP is the most popular language used to write web applications. Even English 4 IT, the program you are currently using, is written in PHP ;)

Strengths: Web programming, good documentation

Weaknesses: Inconsistent **syntax**, too many ways to do the same thing, a history of bizarre security decisions

5. VB (or Visual Basic) Visual Basic is an interpreted, multi-paradigm language developed by Microsoft Corporation for the Windows platform. It has been evolving over the years and is seen as a direct descendant of Microsoft's old BASIC from the 1970's. Visual Basic is a good language for scripting Windows applications that do

not need the power and speed of C#.

Strengths: None.

Weaknesses: Only runs in Windows

Note : Write any 1 or 2 which you can easily recollect.

Also one can refer to the notes Answers to the question bank 2010 –
Question no. 81 – Page no. 112

5. Software solutions, database system and product

The rapid pace of globalization over the past decade has been largely driven by developments in Information and Communication Technology (ICT). IT specialists are increasingly in great demand in several areas, one of which is providing software solutions for business.

The development of software solutions to improve business productivity encompasses many different skills and disciplines. Key to these is an awareness of the fast changing nature of the industry and the ability to keep up with the rapid pace of change.

IT software solution professionals always work closely with clients to modify existing systems or create new systems. They may modify “off the shelf” software and integrate it into the existing systems. They often work as part of a team of software professionals responsible for the requirement specification, system analysis and design, construction, testing, training and implementation, as well as maintenance of a business software system.

The tasks performed by IT software solution professionals include but not limited to the following:

- Review current system and present ideas for improvement, including cost benefit analysis
- Analyse and specify user requirements
- Produce detailed specifications
- Develop software system for the required solution and test the software solution thoroughly
- Prepare user training materials, train users, and present software solution to users

- Install, implement and maintain the software system

IT software solutions professionals can be employed in large, medium and small enterprises as software engineer, in consulting firms as consultant, and in software houses as contractor.

They can operate in a wide variety of roles including development role to tailor-make or customize software solutions, supporting role to operate system, business analyst role to provide solution to simplify and automate routine office and business activities, as well as training role to train user in using the application software

Tips: There are many software solutions in the market.

Eg. CRM, ERP – Write in short.

ERP- DEFINITION - An Enterprise resource planning system is a fully integrated business management system covering functional areas of an enterprise like Logistics, Production, Finance, Accounting and Human Resources. It organizes and integrates operation processes and information flows to make optimum use of resources such as men, material, money and machine.

Enterprise resource planning promises one database, one application, one user interface for the entire enterprise, where once disparate systems ruled manufacturing, distribution, finance and sales.

ERP Characteristics: Any system has to possess few key characteristics to qualify for a true ERP solution. These features are:

1. Flexibility: An ERP system should be flexible to respond to the changing needs of an enterprise. The client server technology enables ERP to run across various database back ends through Open Database Connectivity (ODBC).

2. Modular & Open: ERP system has to have open system architecture. This means that any module can be interfaced or detached whenever required without affecting the other modules. It should support multiple hardware platforms for the companies having heterogeneous collection of systems. It must support some third party addons also.

3. Comprehensive: It should be able to support variety of organizational functions and must be suitable for a wide range of business organizations.

4. Beyond The Company: It should not be confined to the organizational boundaries, rather support the on-line connectivity to the other business entities of the organization.

5. Best Business Practices: It must have a collection of the best business processes applicable worldwide. An ERP package imposes its own logic on a company's strategy, culture and organization.

Features of ERP : Some of the major features of ERP provides multi-platform, multi-facility, multi-mode manufacturing, multi-currency, multi-lingual facilities.

ERP provides complete integration of systems not only across departments but also across companies under the same management.

ERP Vendors (examples of some of the ERP)

Depending on your organization's size and needs there are a number of enterprise resource planning software vendors to choose from in the large enterprise, mid-market and the small business ERP market.

Large Enterprise ERP (ERP Tier I)

- The ERP market for large enterprises is dominated by three companies: SAP, Oracle and Microsoft.

Mid Market ERP (ERP Tier II)

- For the midmarket vendors include Infor, QAD, Lawson, Epicor, Sage and IFS.

Small Business ERP (ERP Tier III)

- Exact Globe, Syspro, NetSuite, Visibility, Consona, CDC Software and Activant Solutions round out the ERP vendors for small businesses.

CRM software consolidates customer information and documents into a single CRM database so business users can more easily access and manage it. The other main functions of this software include recording various customer interactions (over email, phone calls, social media or other channels, depending on system capabilities), automating various workflow processes such as tasks, calendars and alerts, and giving managers the ability to track performance and productivity based on information logged within the system.

Common features of CRM software include:

- Marketing automation: CRM tools with marketing automation capabilities can automate repetitive tasks to enhance marketing efforts to customers at different

points in the lifecycle. For example, as sales prospects come into the system, the system might automatically send those marketing materials, typically via email or social media, with the goal of turning a sales lead into a full-fledged customer.

- Sales force automation: Also known as sales force management, sales force automation is meant to prevent duplicate efforts between a salesperson and a customer. A CRM system can help achieve this by automatically tracking all contact and follow-ups between both sides.
- Contact center automation: Designed to reduce tedious aspects of a contact center agent's job, contact center automation might include pre-recorded audio that assists in customer problem-solving and information dissemination. Various software tools that integrate with the agent's desktop tools can handle customer requests in order to cut down the time of calls and simplify customer service processes.
- Geolocation technology, or location-based services: Some CRM systems include technology that can create geographic marketing campaigns based on customers' physical locations, sometimes integrating with popular location-based GPS apps. Geolocation technology can also be used as a networking or contact management tool in order to find sales prospects based on location.

the basic advantages and benefits of CRM are these:

- satisfied customer does not consider leaving
- product development can be defined according to current customer needs
- a rapid increase in quality of products and services Customers Back Office Data Warehouse Operative CRM Collaborative CRM Analytical CRM 86
- the ability to sell more products
- optimization of communication costs
- proper selection of marketing tools (communication)
- trouble-free run of business processes
- greater number of individual contacts with customers
- more time for customer
- differentiation from competition
- real time access to information

- fast and reliable predictions
- communication between marketing, sales and services
- increase in effectiveness of teamwork
- increase in staff motivation

**Database system – Refer to the note – Answers to the question bank 2010
– page no. 45**

6. Comprehensive Project in your specialisation

I think this question relates to the activity discussed in your class.