

Study guide

IT101 : Introduction to IT&IS

1. What are the different types of Agility?

- ❖ Customer
- ❖ Partnering
- ❖ Operational

Type of Agility	Description	Role of IT	Example
Customer	Ability to co-opt customers in the exploitation of innovation opportunities <ul style="list-style-type: none"> • As sources of innovation ideas • As co-creators of innovation • As users in testing ideas or helping other users learn about the idea 	Technologies for building and enhancing virtual customer communities for product design, feedback, and testing	eBay customers are its de facto product development team because they post an average of 10,000 messages each week to share tips, point out glitches, and lobby for changes
Partnering	Ability to leverage assets, knowledge, and competencies of suppliers, distributors, contract manufacturers, and logistics providers in the exploration and exploitation of innovation opportunities	Technologies facilitating interfirm collaboration, such as collaborative platforms and portals, supply chain systems	Yahoo! has accomplished a significant transformation of its service from a search engine into a portal by initiating numerous partnerships to provide content and other media-related services from its Web site
Operational	Ability to accomplish speed, accuracy, and cost economy in the exploitation of innovation opportunities	Technologies for modularization and integration of business processes	Ingram Micro, a global wholesaler, has deployed an integrated trading system allowing its customers and suppliers to connect directly to its procurement and ERP systems

2. List the competitive forces and the competitive strategies?

- ❖ (Competitive Forces (Porter
 - ❖ Rivalry of Competitors
 - ❖ Threat of New Entrants
 - ❖ Threat of Substitutes
 - ❖ Bargaining Power of Customers
 - ❖ Bargaining Power of Suppliers
 - ❖
- ❖ Competitive Strategies
 - ❖ Cost Leadership Strategy
 - ❖ Differentiation Strategy
 - ❖ Innovation Strategy
 - ❖ Growth Strategy
 - ❖ Alliance Strategy

3. Describe the “Distributed Grid Computing” and what are their advantages and disadvantages?

Distributed Grid Computing – parallel computing over a network

- **Advantages** – purchase nodes as a commodity, economies of scale
- **Disadvantages** – untrustworthy calculations, lack of centralized control

4. What is the difference between sequential access storage device and direct access storage device?

- **Direct Access** – Random Access Memory (RAM) and Direct Access Storage Devices (DASD) – Direct Access and Random Access are the same concept; locate an address on the storage device and go directly to that location for access to the datum
- **Sequential Access** – All tape devices are accessed serially – device must be read one record at a time from the first stored datum until the desired datum is located

5. Write some notes about different semiconductor memory devices in computer.

- **RAM (Random Access Memory)** – volatile, may be read and over-written
- **ROM (Read Only Memory)** – non-volatile, may be read but not over-written or erased; PROM and EPROM may be reprogrammed
- **Flash (Jump) Drives** – solid-state memory
- **ReadyBoost** – Microsoft product that uses any flash product as a cache to increase Windows access speed
- **Solid-State Drive (SSD)** – transistor device created to be accessed like a hard drive; no moving parts, non-volatile, much faster access speed

6. Give a short description about the following

a. **Redundant Arrays of Independent Disks**

(RAID Storage) interconnected groups of hard drives, fast speeds, fault tolerant (redundant backups) through networks

b. **Magnetic Tape**

slow speeds, but inexpensive for large amounts of backups

7. What is the basic difference between hardware and software? Explain briefly.

• **Hardware**

- Physical parts of the computer are called hardware.
- You can touch, see and feel hardware.
- Hardware is constructed using physical materials or components.
- Computer is hardware, which operates under the control of a software.
- If hardware is damaged, it is replaced with new one.
- Hardware is not affected by computer viruses.
- User cannot make new duplicate copies of the hardware.

• **Software**

- A set of instructions given to the computer is called software.
- You cannot touch and feel software.
- Software is developed by writing instructions in programming language.
- The operations of computer are controlled through software.
- If software is damaged or corrupted, its backup copy can be reinstalled.
- Software is affected by computer viruses.
- User can make many new duplicate copies of the software.

8. Briefly explain the terms: Custom software, Commercial Off-the-Shelf Software (called COTS), and Open-source software.
- **Custom Software** – designed and created specifically to do a particular job for one company
 - **Commercial Off-the-Shelf Software (COTS)** – developed to sell many copies (usually for profit); source code may not be modified by user
 - **Open Source Software** – anyone may modify the software, the documentation and source code are available to anyone
9. What is the difference between the Machine Language and the Assembler Language?
- **Machine Languages** – first generation language – instructions written in binary (0's and 1's); runs directly on the computer
 - **Assembler Languages** – second generation language – uses symbols/mnemonics to represent operational codes; converted into binary by an Assembler
10. What is the difference between the System Management and System Development Programs?
- **System Management Programs** – programs that manage the hardware, software, network, and data resources
 - **System Development Programs** – programs that help users develop IS programs and procedures; CASE tools
11. List and give a brief description about the operations used in relational data base structure?
- Relational Operations**
- **Select** – create a subset that meets a criterion
 - **Join** – temporarily combine two or more tables for comparison
 - **Project** – create a subset of the columns in the temporary tables
12. Explain any Two database models?
- **Hierarchical Structure** – treelike structure of one-to-many parent-child relationships (each child can have only one parent)
 - **Network Structure** – similar to hierarchical but allows many-to-many relationships (a child record can have more than one parent)
 - **Relational Structure** – the most widely used database model today; data is represented as a series of two-dimensional tables called Relations; each column is a named attribute of the entity, each row is an unnamed instance of that entity
 - **Object-Oriented Structure** – combining the data of interest and the processes that act on that data into a structure called an object
13. Distributed Database is one type of databases. Mention three other database types.
- **Operational Databases** – store detailed data to support business processes and operations
 - **External Databases** – outside the firm, free or fee-based
 - **Hypermedia Databases** – hyperlinked pages of multimedia

14. "Lack of data Integration" is one problem of traditional file processing. Mention three other problems.

1. Data Redundancy – the same data is kept in more than one location; databases seek to Control (NOT reduce!) Redundancy; this led to Data Inconsistency – same data in multiple locations but the Values were Different

2. Lack of data Integration – data not easily available for ad hoc requests

3. Data Dependence – data and programs were "tightly coupled", changing one meant having to change the other

4. Lack of Data Integrity (Standardization) – data was defined differently by different end users or applications

15. What is a telecommunication media and its application? List and explain any three most significant communication media available in the market.

Media – the physical pathway over which signals travel

1- Twisted-Pair Wire – pair of very thin copper wires twisted in opposite directions (noise reduction); cheap, easy to use, but low bandwidth

2- Coaxial Cable – central copper wire wrapped with insulator, an external wire braid surrounded by a cover; not as easy to manipulate, more expensive than twisted pair, but higher bandwidth

3- Fiber Optics – hair-thin glass fibers wrapped in protective jacket (cladding), conducts light (photons); difficult to handle, expensive, but highest bandwidth

16. Explain various types of telecommunication networks from geographical area and ownership perspective . (مومتأكده اذا كلها او الثلاثه الأولى فقط).

1. Wide Area Networks (WAN) – between cities/large geographic areas, LANs connected by common carrier or leased lines

2. Metropolitan Area Networks (MAN) – LANs connected over a specific geographical area

3. Local Area Networks (LAN) – equipment owned by the firm, short distances, usually within a single building (or room)

4. Virtual Private Networks (VPN) – a network using the Internet as a backbone but incorporating security for privacy

5. Client/Server Networks – a powerful, central computer (server) providing information and processing (services) to multiple end-user computers (clients)

6. Network Computing – a minimally-powered browser-based computer obtains its data and processing from the Internet

7. Peer-to-Peer Networks (P2P)

Central Server Architecture – P2P software connects a PC to the central server with a directory of all other users (peers)

Pure Peer-to-Peer – PCs connected without any central server

17. Explain the interactive marketing

Interactive Marketing – customer-focused two-way transactions between a firm and its (potential) customers

18. Give two objectives of the Computer-Integrated Manufacturing

- Simplify (reengineer) production processes
- Automate – with computers, machines, robots
- Integrate – tie together all production and support processes with networks, cross-functional software, and other IT

19. Mention the steps in developing IS solutions?

- **Investigate (Plan)** – recognize the problem exists
- **Analyze** – investigate the current system
- **Design** – designing the new system
- **Implement** – put the new system into effect
- **Maintain (Use)** – use, monitor, and maintain the new system

20. What are the differences between custom software, COTS (commercial of the shelf software), and open source software? (نفس سؤال ٨)

- **Custom Software** – designed and created specifically to do a particular job for one company
- **Commercial Off-the-Shelf Software (COTS)** – developed to sell many copies (usually for profit); source code may not be modified by user
- **Open Source Software** – anyone may modify the software, the documentation and source code are available to anyone

21. What is the difference between traditional file processing approach and database management approach?

- **File processing approach** - Data was stored in independent files without regard to other needs for that data
- **Database management approach** - Consolidate the data from separate files into databases accessible by multiple application programs

22. What are the basic strategies in the business use of IT?

- Business process reengineering
- Agile company
- Virtual Company
- Building a Knowledge-Creating Company
- Knowledge Management Systems

23. Differentiate briefly between the batch processing and online processing?

- **Batch Processing** – record data, the process it periodically in “batches”
- **Real-time (Online) Processing** – capture and process the data immediately after it occurs

24. What is Financial Management Systems?

Support decisions concerning:

- Financing a business – determine financing needs
- Allocation and control of financial resources
- Capital Budgeting – evaluate profitability and financial impact of proposed capital expenditures
- Financial Planning – evaluate present and projected financial performance