



UNIVERSITY OF COLOMBO, SRI LANKA

UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING

DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY (*EXTERNAL*)

Academic Year 2006/2007 – 1st Year Examination – Semester 1

IT1103 – Information Systems & Technologies

Multiple Choice Question Paper

**10th March, 2007
(TWO HOURS)**

Important Instructions:

- The duration of the paper is **2 (Two) hours**.
- The medium of instruction and questions is English.
- The paper has **45 questions** and **10 pages**.
- All questions are of the MCQ (Multiple Choice Questions) type.
- All questions should be answered.
- Each question will have 5 (five) choices with **one or more** correct answers.
- All questions will carry equal marks.
- There will be a penalty for incorrect responses to discourage guessing.
- The mark given for a question will vary from 0 to +1 (*All the correct choices are marked & no incorrect choices are marked*).
- Answers should be marked on the special answer sheet provided.
- Note that questions appear on both sides of the paper.
If a page is not printed, please inform the supervisor immediately.
- Mark the correct choices on the question paper first and then transfer them to the given answer sheet which will be machine marked. **Please completely read and follow the instructions given on the other side of the answer sheet before you shade your correct choices.**

1) Which of the following resources is used by a computer based information system to perform input, processing, output, storage and control activities which transform data resources into information products?

- | | |
|------------------------|---------------|
| (a) Hardware equipment | (b) People |
| (c) User interfaces | (d) Databases |
| (e) Software products | |

2) Which of the following statements is/are **correct** about a system?

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| (a) A system is a group of interrelated components working together towards the attainment of a common goal. |
| (b) A system accepts outputs and produces inputs in an organized transformation process. |
| (c) A system that evaluates the feedback and makes necessary adjustments to the input and processing components to ensure that a proper output is produced. |
| (d) The human body is not an open system since it has limited abilities to interact with the environment. |
| (e) Human body is an example of a system which is adaptive whereas a building is an example of a non-adaptive system. |

3) Which of the following is **not** a feature of **valuable information**?

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|----------------|----------------|---------------|
| (a) Reliable | (b) Inaccurate | (c) Expensive |
| (d) Accessible | (e) Complex | |

4) Which of the following statements is/are **correct** about input and output devices?

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| (a) Point-Of-Sale (POS) terminals can include bar-code scanners which read and enter codes into computer systems. |
| (b) Automated Teller Machines (ATMs) are terminals with keyboards used for transactions. |
| (c) Joysticks allow users to activate a command, enter handwritten notes and draw objects and figures. |
| (d) The quality of a display monitor is determined by the size, colour and resolution. |
| (e) Printers and scanners are popular output devices. |

5) Following statements are based on instruction processing.

- (i) Registers hold data and instructions given to the Central Processing Unit (CPU) and it is the workspace of the CPU.
- (ii) The control unit controls the flow of information and instructs the computer how to carry out program instructions.
- (iii) The control unit only directs the movement of data between the registers and the Arithmetic/Logic Unit (ALU).

Identify the **correct** statement(s).

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|-----------------------|----------------------|
| (a) Only (i) & (ii) | (b) Only (i) & (iii) |
| (c) Only (ii) & (iii) | (d) All |
| (e) Only (i) | |

- 6) The following are statements containing the expression “Management Information Systems (MIS)”.
- (i) Typically, Management Information Systems (MISs) are designed to support all phases of decision-making, but they do not replace the decision maker.
 - (ii) Management Information Systems (MISs) use internal data resources generated by transaction processing systems to develop reports with fixed and standard formats.
 - (iii) Management Information Systems (MISs) are typically designed to carry out repetitive information processing and handle large volumes of data than a Transaction Processing System (TPS).

Identify the **correct** statement(s).

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|-----------------------|------------------------|-------------------------|
| (a) Only (i) and (ii) | (b) Only (i) and (iii) | (c) Only (ii) and (iii) |
| (d) Only (iii) | (e) All | |

- 7) Which of the following statements containing the expression Group Support Systems (GSSs) is/are **correct**?

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| (a) Some GSSs support anonymity that encourages participation of all members of the group, independent of their status. |
| (b) GSSs can allow the exchange of information and expertise among people with or without direct face-to-face interaction. |
| (c) GSSs allow documents to be shared over a network to carry out face to face discussions and to schedule meetings. |
| (d) An effective GSS must have the capability to support executive decisions with components such as strategic planning, organizing and crisis management. |
| (e) In a GSS, nominal group techniques use voting to take the final decision. |

- 8) Which of the following statements is/are **correct** in relation to data, information and databases?

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|---|
| (a) Information can be defined as known primary facts or objects which have meaning in the user’s environment for recording. |
| (b) A database is designed, built and populated with data or information for a specific purpose. |
| (c) A list of students who have scored more than fifty can be recognised as a set of data. |
| (d) A data dictionary allows database designers and users to understand what data exist, what the data means and its limitations. |
| (e) A sales person may include in his database, photographic images of customers and video clips of discussions he has had with the customer. |

- 9) Which of the following is/are **true** with respect to a Data Manipulation Language (DML)?

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| (a) It is a computer language used by computer programs or database users to retrieve, insert, delete and update data in a database. |
| (b) It is a computer language used by computer programs or database users to handle the interface of the database. |
| (c) SQL is one of the most popular DMLs. |
| (d) Procedural and non-procedural languages are two types of DMLs. |
| (e) DML is a language which enables users to create a database. |

10) The Value Chain concept developed by Michael Porter can be used to

- (a) understand the linkages among a firm's activities.
- (b) compete in market with short reproduction lifetimes.
- (c) understand which activities are performed by a firm to add value to the customer.
- (d) link potential computers to share some valuable resources within a firm.
- (e) compare the costs and benefits of alternative solutions.

11) A company can survive and succeed in the long run only if it successfully develops strategies to gain advantage in the global market over the competitive forces. Identify these competitive forces.

- (a) The challenge of competitors
- (b) The threat posed by substitute products which might capture market share
- (c) Threat of new entrants into an industry and its market
- (d) Technology development
- (e) The speed of production of products

12) The following statements are based on the activities performed by a computer based information system. Identify the **correct** statement(s).

- (a) Generating audible signals to indicate proper entry of sales data is an example of the control activity.
- (b) By using bar code scanners at a point-of-sale terminal, the efficiency of the output activity can be improved.
- (c) Information in various forms is transmitted to end users and made available to them in the output activity.
- (d) Storage is the information system activity in which data and information are retained in an organized manner for later use.
- (e) Calculating employee pay, taxes and payroll deductions are examples of the output activity.

13) The following statements are based on the components of a computer based information system.

- (i) Secondary storage such as magnetic tapes and disks can be used to store data and information in an organized manner for later use.
- (ii) A Local Area Network (LAN) is a network which is spread over a small geographical area, whereas, the Internet is a wide area network.
- (iii) Microsoft Windows and Microsoft Word are examples of application and system software respectively.

Identify the **correct** statement(s).

- (a) Only (i)
- (b) Only (iii)
- (c) All
- (d) Only (ii)
- (e) Only (i) and (ii)

14) "Rapid organizational change is inevitable in today's business environment but the risks associated with managing change poorly are often overlooked. Part of the reason for the failure of many organizational changes is the employee resistance to change".

Which of the following may cause possible resistance from employees?

- (a) Fear of job loss, power or influence within the organisation
- (b) Willingness to learn new procedures or approaches
- (c) Employee belief that the new system will reduce the workload
- (d) Employee belief that the new system will address the required needs of the organisation
- (e) Effective communication between the management and staff regarding the changes taking place in the organisation

- 15) There are five basic competitive strategies which a firm can use to counter the threats of competitive forces. Which one of the following strategies is concerned with working with two or more companies which involve the joint production and distribution of goods and services?

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|-----------------------------|----------------|
| (a) cost leadership | (b) innovation |
| (c) product differentiation | (d) alliance |
| (e) growth | |

- 16) Computer based information systems facilitate many activities in an organisation. The following statements are about these activities performed by different information systems.

- (i) In a retail store, a Transaction Processing System (TPS) can be used to facilitate the purchasing activity and produce the receipts to the customer.
- (ii) Although Transaction Processing Systems (TPSs) support operational level activities, competitive advantage cannot be gained by using these systems.
- (iii) Management Information Systems (MISs) focus only on the top level management and do not support activities which support middle level management.

Identify the **incorrect** statement(s).

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|----------------|-------------------------|--------------|
| (a) Only (iii) | (b) Only (ii) | (c) Only (i) |
| (d) All | (e) Only (ii) and (iii) | |

- 17) Following statements refer to the storage devices of a computer. Identify the **incorrect** statement(s).

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| (a) Tapes must be read sequentially, and they are well suited for backup due to their speed and reliability. |
| (b) Retrieving data from magnetic disks takes more time than retrieving data from magnetic tapes. |
| (c) Magnetic disks consist of tracks and sectors. |
| (d) Optical disks use the direct access method whereas floppy disks use the sequential access method. |
| (e) Floppy disks are suitable to be used when the storage medium needs to be portable. |

- 18) There are different types of computer systems with varying features and capabilities available to the end user. The following statements are based on these different types of computer systems. Identify the **correct** statement(s).

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| (a) Micro computers were designed as single user systems. However, the capabilities of micro computers have improved over the years. |
| (b) Network computers rely on a centralized control which is a kind of disadvantage of network computers. |
| (c) A thin client is a diskless, inexpensive computer used for accessing server-based applications and the Internet. |
| (d) Personal Digital Assistants (PDAs) are hand held micro computer devices which are much more useful to employees who work in one office than those who are mobile. |
| (e) Mainframe systems are the most suitable to carry out high volume transaction processing in banks and airlines. |

- 19) Which of the following is/are (a) device(s) suitable to connect networks built on different architectures?

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|--------------|------------|-------------|
| (a) Router | (b) Hub | (c) Gateway |
| (d) Firewall | (e) Server | |

- 20) Suppose there is a company having 2 offices in 2 distant towns. If each of these offices runs its own network, which of the following communication medium/media is/are suitable to connect them together?
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|-----------------------|---------------|--------------|
| (a) Coaxial-cable | (b) Microwave | (c) Infrared |
| (d) Fibre-optic cable | (e) Bluetooth | |
- 21) What is/are the major security control(s) which should be established in an enterprise?
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|--------------------|-------------------|---------------|
| (a) authentication | (b) authorization | (c) integrity |
| (d) privacy | (e) audit | |
- 22) Identify the **false** statement(s) regarding Intrusion Detection Systems (IDSs)?
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| (a) Two types of IDS Systems are Host-Based and Network-Based IDSs. |
| (b) Host-Based IDS have a negative impact on system performance. |
| (c) Host-Based IDS always notice a network-based attack such as denial of service. |
| (d) Many Host-based IDS have a negative impact on System stability. |
| (e) If an attack signature is spread across a multiple packet, then Network-based IDS cannot detect that attack because IDS cannot reassemble all packets. |
- 23) Identify the **correct** statement(s) related to Information Systems Development.
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| (a) The process of system development includes all aspects ranging from the problem to be solved to the implementation of solution. |
| (b) Information system Planning transforms organizational goals outlined in the strategic plan into specific system development activities. |
| (c) System Analysts are professionals who specialize in analyzing, designing and developing business systems. |
| (d) System Developers are specialists who are responsible for modifying or developing programs according to user requirements. |
| (e) Studying the existing system and identifying the strengths, weaknesses, opportunities and threats for improvement, are activities done during the problem definition phase of the Systems Development Life Cycle. |
- 24) Which of the following is/are **not** (an) ongoing activity(ies) of system design?
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| (a) Creating a technical solution that satisfies the functional requirements of the system |
| (b) Assessing the ability of the ultimate users to design a system based on the current operations of the organization |
| (c) Developing steps and procedures which can prevent, detect and correct errors in using the system |
| (d) Identifying existing system problems and new opportunities related to the goals of the organization |
| (e) Translating the operational needs of the organizational entities into technical specifications which can be used as the input to system implementation |
- 25) Which of the following is/are correct regarding feasibility analysis?
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| (a) Technical Feasibility is a measure of the practicality of a specific technical solution and the availability of technical resources and expertise. |
| (b) Economic feasibility is to find out whether the organization currently possesses the necessary hardware and personnel. |
| (c) Legal Feasibility involves investigation of existing and future laws to find out whether a legal action against the project is possible. |
| (d) Operational feasibility determines whether the solution can be designed and implemented within an acceptable time period. |
| (e) Schedule Feasibility is a measure of how time is allocated for the project. |

26) Which of the following is/are suitable for an Internet facility of a school?

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|-----------------------------------|------------------------|
| (a) Virtual Private Network (VPN) | (b) Dial-up connection |
| (c) ADSL | (d) ISDN |
| (e) Bluetooth | |

27) What is/are correct in relation to DBMS?

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| (a) It makes databases more independent of applications. |
| (b) The physical design is the responsibility of the DB Administrator. |
| (c) The logical view is a single description of the data elements and their relationships. |
| (d) The database is kept at the 'external level'. |
| (e) The database does not allow hiding confidential data from users. |

28) The following statement(s) is/are about Decision Support System (DSS).

- (i) The focus of a DSS is to support managerial decision-making effectively when faced with structured or semi-structured business problems.
- (ii) Model management software assists with communication between the user and the DSS .
- (iii) A model driven DSS utilises vast stores of information contained in the corporate database and primarily performs qualitative data analysis.

Identify the **incorrect** statement(s).

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|---------------------|---------------|----------------|
| (a) Only (i) | (b) Only (ii) | (c) Only (iii) |
| (d) Only (i) & (ii) | (e) All | |

29) RAD stands for

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|---------------------------------------|-------------------------------------|
| (a) Requirement Analysis and Design. | (b) Rapid Access Development. |
| (c) Rapid Application Development. | (d) Random Application Development. |
| (e) Requirement Analysis Development. | |

30) Two key aspects of system design are logical and physical design. Which of the following is/are **not** identified during logical design?

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| (a) Performance characteristics of all computer equipment needed |
| (b) Auditing, backup and output distribution methods |
| (c) Types, formats, content and frequencies of the system input and output |
| (d) Type, content, structure and distribution of databases |
| (e) Files and databases |

31) Which of the following functions is/are performed by a database administrator?

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|---|
| (a) Planning, designing and implementing of database systems |
| (b) Entering data and managing database applications |
| (c) Establishing standards and procedures for database systems |
| (d) Viewing a database system from the perspective of the functions it should perform |
| (e) Communicating with database users |

32) A website intentionally displays information which imposes a danger to society. If this issue needs immediate action, which of the following is/are appropriate in order to control the situation early?

- (a) Informing the Service Provider about the website and its danger
- (b) Hacking the website and changing the information as soon as possible
- (c) Requesting the recognized computer societies to take necessary action
- (d) Making an official complaint to the nearest Police Station
- (e) Communicating with database users

33) In addition to database management software the other possible types of software which a database system will have are

- (a) languages used for coding user interfaces and application programs.
- (b) presentation software for documenting the design of the database.
- (c) computer-aided software engineering tools (CASE).
- (d) a fourth generation language such as Embedded Structured Query Language.
- (e) user administration tools provided by the operating system for managing users of the database.

34) Which of the following **cannot** be considered as computer waste?

- (a) Heavy usage of Internet
- (b) Flooding email for advertising purposes
- (c) Upgrading the existing version of a word-processing package with the latest version
- (d) Saving all incoming and sent emails in the hard disk for future reference
- (e) Daily upgrading of anti-virus software

35) Suppose there is a company web server that satisfies HTML requests by customer computers. In which architecture do the computers operate?

- (a) terminal-to-host architecture
- (b) client-server architecture
- (c) file-server architecture
- (d) B-2-B architecture
- (e) Peer-to-Peer architecture

36) Which of the following statements is/are **correct** in relation to data warehousing?

- (a) It uses a collection of 'Decision support techniques'.
- (b) Before data is added to the 'warehouse', it is cleaned and reformatted.
- (c) Using a 'data warehouse', data mining can be done.
- (d) A data warehouse is a miniature version of a data mart.
- (e) Data does not need to be cleaned or reformatted to be added to a 'data warehouse'.

37) The following statements are based on the hardware of a computer system. Identify the **incorrect** statement(s).

- (a) Secondary storage is less volatile and has larger capacity than memory.
- (b) Input and output devices allow users to feed data and instructions to the computer for processing and storage.
- (c) The relative clock speed of two Central Processing Units (CPUs) from different manufacturers is a good indicator of their relative processing speed.
- (d) Output devices provide information in different forms, such as print and digital sound format.
- (e) Cache memory is a type of high-speed memory that the Central Processing Unit (CPU) can access more rapidly than Random Access Memory (RAM).

38) Consider the following statements:

- (i) A Gantt chart is a simple horizontal bar chart that shows project tasks against a calendar.
- (ii) JAD emphasizes participative development among users and others involved with the system.
- (iii) Decision tables are used for planning, monitoring and coordinating projects.

Which of the above statements is/are **correct**?

(a) Only (i)	(b) Only (i) & (ii)	(c) Only (i) & (iii)
(d) Only (ii) & (iii)	(e) All	

39) Which of the following is/are (an) example(s) of an application(s) of Transaction Processing Systems (TPSs).

(a) Keeping track of customer contacts during a sales cycle
(b) Tracking receipts of materials from suppliers
(c) Processing credit card payments
(d) Generating weekly production report by product and operation
(e) Video conferencing to coordinate manufacturing and sales efforts

40) Which of the following (is) a/are valid component(s) of user interface?

(a) icons	(b) function keys
(c) cascading menus	(d) pop-up menus
(e) scroll bars	

41) A recently started business utilises a printer, fax machine and several laptops. What is/are the possible network type(s) which can be formed by connecting these devices together?

(a) Personal Area Network (PAN)	(b) wireless network
(c) enterprise network	(d) peer-to-peer network
(e) client-server network	

42) Consider the following Diagram.



Legend	 Complete task
	 Incomplete task

Today

The above diagram is an example of a

(a) Data Flow Diagram.	(b) Activity Flow Diagram.
(c) Gantt Chart.	(d) Activity Chart.
(e) Grid Chart.	

43) The following statements are based on specialized information systems.

- i. Expert systems can be used to generate exception and key-indicator reports.
- ii. Since expert systems lack common sense and they have no real understanding of the data and logic, it is risky to trust such systems to make decisions independently.
- iii. In contrast to the use of expert systems, neural networks are used for tasks which have no pre defined formulae or procedures.

Which of the above statement(s) is/are **correct**?

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|-----------------------|---------------------|
| (a) Only (i) & (iii) | (b) Only (i) & (ii) |
| (c) Only (ii) & (iii) | (d) Only (ii) |
| (e) All | |

44) Which of the following statements is/are **true** about Ergonomics?

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| (a) Repetitive stress injuries caused by computers and related devices are known as Ergonomics. |
| (b) Ergonomic design principles help to minimise worker injuries caused by computer equipment. |
| (c) Ergonomics only focus on the study of injuries caused by computer equipment. |
| (d) The aggravation of the pathway for nerves which travel through the wrist is known as Ergonomics. |
| (e) The study of designing and the placement of display screens are included in Ergonomics. |

45) What is the correct order of Viruses and Worm phases?

- | | |
|---|--|
| (a) Dormant, Execute, Trigger, Propagation | (b) Execute, Dormant, Trigger, Propagation |
| (c) Trigger, Dormant, Execute, Propagation. | (d) Dormant, Propagation, Trigger, Execute |
| (e) Dormant, Trigger, Propagation, Execute | |
