



UNIVERSITY OF COLOMBO, SRI LANKA

UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING

DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY (EXTERNAL)

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IT1105 - Information Systems & Technology

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(TWO HOURS)

Important Instructions :

- The duration of the paper is 2 **(two) hours**.
- The medium of instruction and questions is English.
- The paper has **50 questions** and **13**
- **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 (*All the incorrect choices are marked & no correct choices are marked*) 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 can be considered only as an input device?

- | | | |
|-----------------|-------------------|--------------|
| a) Scanner | b) Digital Camera | c) Light Pen |
| d) Touch Screen | e) Monitor | |

2) Which of the following create new channels for interactive communications between a company and its customers?

- | |
|---|
| a) Customer Relationship Management Systems |
| b) Extranet |
| c) Enterprise Resource Planning Systems |
| d) Intranet |
| e) Supply Chain Management Systems |

3) Following statements are about Systems Design.

- (i) Systems controls considered during system design can help prevent computer misuse as well as crime and fraud done by managers and employees.
- (ii) Two key aspects of system design are logical and physical design.
- (iii) Interface Design is a key aspect considered during system design and it determines backups and their frequencies.

Which of the above statements is/are **TRUE** of Systems Development?

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

4) Following statements are about the 'testing phase' of the system development life cycle. Identify the **TRUE** statement(s).

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|--|
| (a) Testing of all the programs taken together is known as volume testing. |
| (b) The system is tested with the end users during acceptance testing. |
| (c) Integration testing is done after integrating the different modules of the system. |
| (d) System testing ensures the capability of the system to handle large volumes of data. |
| (e) Testing is carried out immediately after the design phase in the waterfall method. |

5) Which of the following is/are **TRUE** about systems development methodologies?

- | |
|---|
| (a) Waterfall method does not support system modifications while they are being developed. |
| (b) Use of prototyping is ideal when user requirements are not clear. |
| (c) The best approach for any systems development requirement is the Traditional approach/Waterfall method. |
| (d) There is less documentation in RAD than the Waterfall approach to systems development. |
| (e) In the Traditional approach, various tools are used to increase the speed of development. |

6) Consider the following statements about systems development.

- (i) Systems development can be carried out internally or through an external organization.
- (ii) Systems development can be initiated due to the desire to exploit new technologies.
- (iii) Alignment of business objectives with IT/IS capabilities is important for successful systems development.

Which of the above statements is/are **TRUE** of Systems Development?

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

7) Following statements are based on different types of Decision Support Systems (DSS) and Management Information Systems (MIS). Identify the **FALSE** statement(s).

- | |
|---|
| <ul style="list-style-type: none">(a) Some of the MIS may have features such as brain storming and nominal group technique.(b) Some of the Artificial Intelligence (AI) systems can learn from experience and apply the knowledge acquired from experience to solve problems.(c) Executive Support Systems (Executive Information Systems) has the ability to support strategic planning.(d) Expert Systems and Neural Networks are some application areas of AI.(e) Robots are useful to carry out dangerous and repetitive tasks. |
|---|

8) Swarna who is an architect set up her own business at her residence with three employees. She bought new equipment as well as computer hardware and software to facilitate architectural drawings, connect to the internet as well as to share peripheral devices with her co-workers.

Which of the following hardware devices is/are most useful for Swarna's business to carry out architectural printing as well as to draw sketches on the computer respectively?

- | | |
|-----------------------|------------------------|
| (a) printer, plotter | (b) scanner, mouse |
| (c) scanner, keyboard | (d) light pen, plotter |
| (e) plotter, mouse | |

9) Swarna intends to set up a network between the computers as well as different peripheral devices. This network

- (i) will enable the workers to share the peripheral devices such as printers.
- (ii) is known as a Wide Area Network (WAN).
- (iii) will help the organization to reduce costs.

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

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

10) The following statements are based on the components of a Decision Support System (DSS).

- (i) A model-base supports all aspects of communication between the user and the hardware and software that constitute the DSS.
- (ii) The Database Management System allows managers and decision makers to perform qualitative analysis on the data.
- (iii) The dialogue manager allows managers and decision makers to perform quantitative analysis on both internal and external data.

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

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

11) Complete the following sentences.

Transaction Processing Systems (TPS)

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|--|
| (a) record routine transactions in the database. |
| (b) provide data as inputs to Decision Support Systems (DSS) directly. |
| (c) generate reports such as scheduled reports for management decision making. |
| (d) are often used for unique decision making. |
| (e) support work of operational level managers. |

12) Complete the following sentences.

A Decision Support System (DSS)

- | |
|--|
| (a) may handle large amounts of data from internal and external data sources. |
| (b) that supports repetitive decisions are addressed by an institutional DSS. |
| (c) is capable of performing complex and sophisticated analysis than Transaction Processing Systems. |
| (d) cannot support unstructured questions. |
| (e) does not support strategic level managers. |

13) The following statements are based on the components of a Computer Based Information Systems (CBIS).

- (i) Policies and procedures are an important component of a CBIS.
- (ii) System software is used by end users to develop application software.
- (iii) Computer networks help organisations to implement policies.

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

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

14) Which of the following statements is/are **TRUE** about Management Information Systems (MIS)?

- (a) Organizations can achieve competitive advantage by effectively using the information generated by an MIS.
- (b) An input to an MIS can include internal as well as external data sources.
- (c) A Marketing MIS may include sub systems such as marketing research, promotion, advertising and product pricing.
- (d) Output of an MIS directly provides data to Transaction Processing Systems (TPS) and Expert Systems.
- (e) Quality control reports could be an output generated by a Marketing MIS.

15) Which of the following can be considered as a computer waste or a mistake?

- (a) Use of internet during work time for personal use
- (b) Data entry errors
- (c) Computer surveillance of employees at work
- (d) Bugs in computer programs
- (e) Not having a proper policy/mechanism to discard computers

16) Consider the following statements which are about the components of a system.

- (i) Input to a system could take a manual or automated method.
- (ii) 'Processing' component is important as it supports to improve the quality of the input.
- (iii) The output of a system could become an input of another system.

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

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

17) Following statements relate to the components of a Computer Based Information Systems (CBIS).

- (i) The only type of memory available in a newly purchased computer is known as RAM.
- (ii) By using systems software, end users can develop personal documents as well as presentations.
- (iii) Operating systems helps to share peripheral devices in a network.

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

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

18) Complete the following sentences.

Due to different computer crimes faced by organisations,

- (a) their reputation may be lost.
- (b) privacy of customers and or employees may be violated.
- (c) the business can be disrupted.
- (d) sales and competitive advantage may be lost.
- (e) there will be no direct financial loss.

19) Which of the following (is) an /are application software that is being used at an Enterprise Level?

- | | | |
|------------------|------------------|---------|
| (a) SCM software | (b) CRM software | (c) LAN |
| (d) ERP software | (e) Unix | |

20) Consider the following sentences.

Data redundancy in databases

- (i) is also known as data integrity.
- (ii) helps to improve the efficiency of the database.
- (iii) wastes the storage of the database.

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

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

21) Complete the following sentences.

Management Information Systems

- | |
|---|
| <ul style="list-style-type: none"> (a) help to solve unique non-routine problems. (b) outputs are used as inputs to a Decision Support Systems (DSS). (c) generate reports for management decision making. (d) inputs could be outputs of Transaction Processing Systems (TPS). (e) support work of operational level managers only. |
|---|

22) The following statements are about the components of a Computer Based Information Systems (CBIS).

- (i) System software is not required to carry out a printing of a report on a printer.
- (ii) The Central Processing Unit consists of the RAM.
- (iii) Procedures and policies are developed only to protect CBIS from security threats.

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

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

23) Which of the following is/are **TRUE** about Transaction Processing Systems (TPS)?

- (a) Typically automated TPS used in organisations such as banks capture large volumes of data and produce a variety of documents related to routine business activities.
- (b) A warehouse management system integrated with Radio Frequency Identification (RFID) technology can reduce labour hours as well as improve accuracy related to inventory management.
- (c) TPS cannot be used to achieve competitive advantage.
- (d) TPS can be considered as the backbone of any organization's information system.
- (e) Relocation to alternate work places and use of alternate equipment are some tasks related to business continuity planning.

24) Complete the following sentences.

Online Transaction Processing (OLTP)

- (a) is used to process documents in batches.
- (b) is an information processing method in Decision Support Systems.
- (c) is essential for businesses that require up-to-date information such as stock investment firms.
- (d) is always considered more cost effective and more appropriate than other processing types.
- (e) and online entry with delayed processing are the only existing transaction processing methods.

25) Complete the following sentences.

The logical design of a system specifies

- | | | |
|------------------------------|------------------------------|-------------------------|
| (a) Software Specifications. | (b) Output Requirements. | (c) Input Requirements. |
| (d) Processing Requirements. | (e) Hardware Specifications. | |

26) Complete the following sentences.

Relational databases

- (a) help to identify relationships between different entities.
- (b) cannot support concurrent users at all.
- (c) are extremely difficult to use and therefore are used only by organisations with internal support staff.
- (d) are most effective in storing, accessing and manipulating complex data such as images and graphics
- (e) represent data in rows.

27) Which of the following is a/are data model(s) which help(s) to define relationships between data?

- | | | |
|----------------|------------------|----------------|
| (a) Relational | (b) Hierarchical | (c) Horizontal |
| (d) Virtual | (e) Network | |

- 28) Which of the following Transaction Processing Systems (TPS) support different business functions such as Sales/Marketing, Finance/Accounting, Manufacturing and Human Resources in the correct order?

- (a) Pricing System, Material Resource Planning System, Payroll, General Ledger
- (b) Pricing System, General Ledger, Material Resource Planning System, Payroll
- (c) Material Resource Planning System, General Ledger, Pricing System, Payroll
- (d) Payroll, Material Resource Planning System, General Ledger, Pricing System
- (e) Payroll, Pricing System, Material Resource Planning System, General Ledger

- 29) Complete the following sentences.

Automated Transaction Processing Systems (TPS)

- (a) provide inputs to Decision Support Systems (DSS).
- (b) can produce documents as outputs.
- (c) cannot keep track of the elementary activities and transactions of the organization.
- (d) are used mainly by operational level employees of an organization.
- (e) process data only in batches.

- 30) Consider the following statements about organizational structures and competitive advantage.

- (i) A virtual organization uses information technology to link people, organizations, assets and ideas.
- (ii) Some companies try to create new knowledge, disseminate it widely throughout the organization and use it to produce innovative products.
- (iii) Agile companies do not have virtual organizational structures.

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

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

- 31) Complete the following sentences.

When selecting input/output devices, it is important to consider whether the device

- (a) is economical.
- (b) matches the needs of the user with regard to its usage.
- (c) is the latest in the market.
- (d) is always small in size.
- (e) has the ability to integrate easily with the existing technical environment.

32) Complete the following sentences.

In order to avoid unauthorized people entering its data centre physically, an organization may use

- (a) a firewall.
- (b) an intrusion detection software.
- (c) encryption.
- (d) a biometric input device.
- (e) a virus guard.

33) Information Technologies are used to support business strategies in order to gain competitive advantage. Complete the following table by filling in the blanks appropriately. In the table given below, the left column lists different strategies used for competitive advantage and the right column lists how IT is used to achieve these strategies.

Strategies	Use of IT
Cost leadership	X
Y	Make radical changes to business processes with IT that dramatically cut costs, improve quality, efficiency or customer service, or shorten time to market.
Alliances	Z

Identify X, Y, Z correctly.

- (a) X- Use IT to substantially reduce the cost of business processes, Y- Use IT to create virtual organizations of business partners, Z- Differentiation
- (b) X- Use IT to substantially reduce the cost of business processes, Y- Differentiation, Z- Use IT to create virtual organizations of business partners
- (c) X- Use IT to create virtual organizations of business partners, Y- Differentiation, Z- Use IT to substantially reduce the cost of business processes
- (d) X- Differentiation, Y- Use IT to create virtual organizations of business partners, Z- Use IT to substantially reduce the cost of business processes
- (e) X- Use IT to create virtual organizations of business partners, Y- Use IT to substantially reduce the cost of business processes, Z- Differentiation

- 34) 'Student' is one of the files in a relational database that contains personal data of students in a college. Which of the following statements is/are **TRUE** about the 'Student' file?

- | |
|---|
| (a) The attributes of the student file could be 1105, Dulmith, Ekanayaka, 30 Temple Lane, Nawala.
(b) The primary key of this file could be the student number.
(c) Each row of the file will have data of two students.
(d) A collection of different attributes are represented by a column.
(e) The 'Name of a Student' could be represented by alpha numeric data type. |
|---|

- 35) Complete the following sentences.

Application Software

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|--|
| (a) is only available as off-the-shelf applications.
(b) cannot help to interact with the customers.
(c) is categorized as system software and utilities.
(d) can exist at personal level, work group level and enterprise level.
(e) examples are Linux and Unix. |
|--|

- 36) Which of the following can be a security threat (data/information related) to an organization?

- | | | |
|-----------|------------------------|---------------------------|
| (a) Virus | (b) Firewalls | (c) Unsatisfied employees |
| (d) Worms | (e) Antivirus software | |

- 37) Complete the following sentences.

Typical outputs (reports and updated databases) of a Financial Management Information System directly provide support for

- | | | |
|------------------------|------------------|-------------------------------|
| (a) employee training. | (b) recruitment. | (c) product quality checking. |
| (d) auditing. | (e) budgeting. | |

- 38) Which of the following components can be found in a Transaction Processing Systems (TPS) that support the customer order processing business process?

- | | | |
|---------------|-----------------------|--------------------|
| (a) Invoicing | (b) Shipment Planning | (c) General Ledger |
| (d) Budget | (e) Order Entry | |

- 39) Identify the types of systems which can support diagnosis of an illness, mining of data to find out purchase patterns of customers as well as provide support for long-term planning, in the correct order from the answers given below.

- (a) Management Information Systems, Decision Support Systems, Expert Systems
- (b) Decision support systems, Expert Systems, Executive Information Systems (Executive Support Systems)
- (c) Expert Systems, Decision Support Systems, Management Information Systems
- (d) Management Information Systems, Transaction Processing Systems, Executive Information Systems
- (e) Expert Systems, Decision Support Systems, Executive Information Systems (Executive Support Systems)

- 40) Fill the blanks in the following statements with appropriate words.

- (i) The control Unit, directs the movement of data and instructions between the main memory and the (X).
- (ii) (Y) store very small amounts of data and instructions for short periods of time.
- (iii) Two methods of accessing data in the (Z) is the direct and sequential access method.

- (a) X- Secondary Storage, Y- Registers, Z- ALU
- (b) X- ALU, Y- Registers, Z- Secondary Storage
- (c) X- Secondary Storage, Y- ALU, Z - Registers
- (d) X- Registers, Y- Secondary Storage, Z- ALU
- (e) X- ALU, Y- Secondary Storage, Z- Registers

- 41) The following statements are about a system.

- (i) Although system components have independent functionalities, they work together to achieve a specific goal.
- (ii) In a system such as a school, the department of education is considered as a component which is out of the system boundary.
- (iii) A dynamic system undergoes rapid and constant change over time.

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

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

42) The following statements are about data in an information system. Which of the following is/are **FALSE**?

- (a) Data cannot be converted into information after processing.
- (b) Numbers, letters, other characters and images are known as alpha numeric data.
- (c) Reliability of information describes the usefulness of the information.
- (d) Simplicity in the representation of information improves the usability of information in the decision making process.
- (e) Decision makers must always balance the value of information with the cost of producing it.

43) Consider the following statements about software.

- (i) By using off-the-shelf applications, organisations can achieve competitive advantage.
- (ii) Off-the-shelf applications are less risky to use than software developed by an external party as they are often well tested.
- (iii) Software applications developed by the in-house team may lack unique features required, while off-the-shelf applications may have these features.

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

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

44) Which of the following statements is/are **TRUE** about hardware of a computer system?

- (a) A hard disk, compared to memory is a non-volatile storage medium.
- (b) Storage mediums with a sequential access method enables faster access to data.
- (c) USB flash drives are typically removable and rewritable, and physically much smaller than optical discs and are commonly used as a portable storage medium.
- (d) Voice recognition systems can be used on a factory floor to allow equipment operators to give basic commands to machines while they are using their hands to perform other operations.
- (e) Light pens can be used to activate commands and place drawings on the screen.

45) Complete the following sentences.

Database Management Systems

- (a) support non redundancy of data.
- (b) help to manipulate data based on user requirements.
- (c) reduce integrity of data.
- (d) enable the definition of access rights to different users.
- (e) do not ensure that standards are followed in the representation of data.

46) Which of the following statements is/are **TRUE** about privacy and security of information systems?

- (a) Due to the use of computers, violation of privacy of customers has increased.
- (b) Phishing is an act of creating a virus to destroy data.
- (c) Password and user-id can be used as a user authentication mechanism.
- (d) Access control is a mechanism used for data protection.
- (e) Encryption is a technique that can be used to ensure privacy of data.

47) Complete the following sentences.

Business Process Re-engineering (BPR)

- (a) helps to improve business processes.
- (b) improves only primary value chain activities.
- (c) brings about radical change to an organization.
- (d) brings about a change similar to continuous improvement.
- (e) can take a long time to implement.

48) Following statements are about organisations and value chains. Which of the following is/are **FALSE**?

- (a) An organization can be considered as a system that has a goal, components, inputs, processing and outputs.
- (b) The value chain concept shows how organizations can add value to their products and services.
- (c) Primary processes of a value chain include technology development, administrative support services, human resources management and procurement of resources.
- (d) Support processes of a value chain include inbound logistics, outbound logistics, services, sales and marketing and operations.
- (e) Resources are the inputs to an organization.

49) Complete the following sentences.

Computer based Information systems help organisations to

- (a) improve relationships with customers and suppliers in aspects of their interface with the organization.
- (b) eliminate threats from external entities completely.
- (c) remove bottle necks and delays in the processes.
- (d) increase competitive advantage by producing differentiated products/services.
- (e) support decision making by producing meaningful information.

50) The following table shows different types of IT Applications used in different business processes.

Business Process	IT Application
Inbound Logistics	X
Operations	Use Computer aided manufacturing
Sales/Marketing	Z
Y	Employee training
Technology development	Product development with external partners

Which of the following could represent X, Y, Z respectively in the given table?

- a) X- Human Resource Management, Y- Automated Just in Time warehousing, Z- CRM
- b) Z- Human Resource Management, X- Automated Just in Time warehousing, Y- CRM System
- c) Z- Human Resource Management, Y- Automated Just in Time warehousing, X- CRM System
- d) X- Human Resource Management, Z- Automated Just in Time warehousing, Y- CRM System
- e) X- Automated Just in Time warehousing, Y- Human Resource Management, Z- CRM System
