

ICT2621
May/June 2016

UNIVERSITY EXAMINATIONS

UNIVERSITEITSEKSAMENS



ICT2621

May/June 2016

STRUCTURED SYSTEMS ANALYSIS AND DESIGN

Duration 2 Hours

100 Marks

EXAMINERS

FIRST

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SECOND

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Closed book examination

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This paper consists of 10 pages

Instructions

- 1 Answer all the questions
- 2 Answer **BOTH** sections A and B in the answer book. Please **DO NOT** use a mark-reading sheet
- 3 Make sure you have the correct examination paper

NB PLEASE COMPLETE THE ATTENDANCE REGISTER ON THE BACK PAGE, TEAR OFF AND HAND TO THE INVIGILATOR

[Turn over]

SECTION A

[40]

This section consists of multiple-choice questions. In your answer book, in each case write down the number of the question, and next to it the letter representing the correct option, for instance 35. 3

- 1 Which of the following refers to information systems that support companywide operations and data management requirements?
 - 1 Management Information System (MIS)
 - 2 Transaction Processing System
 - 3 Enterprise Resources Planning (ERP)
 - 4 Enterprise Computing

- 2 Which two things do a typical organisational model identifies?
 - 1 Business functions and organisational levels
 - 2 Systems and processes
 - 3 Models and structures
 - 4 Strategic plans and operational plans

- 3 Knowledge Management systems use a technique called that allows inferences to be drawn from imprecise relationships
 - 1 Fuzzy logic
 - 2 Inference rules
 - 3 Data Mining
 - 4 Binary logic

- 4 Which of the following is false
 - 1 Strategic Planning is the process of identifying long-term organisational goals, strategies and resources
 - 2 Strategic planning serves as a framework for IT systems Development
 - 3 SWOT analysis is a solid foundation for the strategic planning process because it examines a firm's technical, human and financial resources
 - 4 Strategic planning looks at the day to day operational activities and focuses on the near future

- 5 This kind of feasibility means that a project can be implemented in an acceptable time frame
 - 1 Technical Feasibility
 - 2 Operational Feasibility
 - 3 Schedule Feasibility
 - 4 Economic Feasibility

- 6 Which is the correct sequence in the preliminary investigation planning process?
- 1 Understand the problem/opportunity, Define the project scope and constraints, Perform fact finding, Present results and recommendations, evaluate feasibility
 - 2 Understand the problem/opportunity, Define the project scope and constraints, Present results and recommendations, evaluate feasibility, Perform fact finding
 - 3 Understand the problem/opportunity, Perform fact finding, , Define the project scope and constraints Present results and recommendations, evaluate feasibility
 - 4 Understand the problem/opportunity, Define the project scope and constraints, Perform fact finding, evaluate feasibility, Present results and recommendations
- 7 Because it focuses on processes that transform data into useful information, structured analysis is called _____ technique
- 1 an iterative
 - 2 a process-centred
 - 3 an inferred
 - 4 an empowered
- 8 The _____group typically provides leadership and overall guidance, but the systems themselves are developed by teams consisting of users, managers and IT staff members
- 1 web support
 - 2 systems support
 - 3 application development
 - 4 database administration
- 9 Which of the following includes automated response to sales inquiries, web-based order processing, and online inventory tracking?
- 1 Mission statement
 - 2 Customer relationship management (CRM)
 - 3 Feasibility study
 - 4 Total cost of ownership (TCO)
- 10 Which of the following is NOT a tangible benefit?
- 1 A user-friendly system that improves employee job satisfaction
 - 2 A new scheduling system that reduces overtime
 - 3 An online package tracking system that decreases the need for clerical staff
 - 4 A sophisticated inventory control system that cuts excess inventory

- 11 In which section of the preliminary investigation report would you put the preliminary investigation, including a description of the project's scope, constraints and feasibility?
- 1 Appendix
 - 2 Case for action
 - 3 Introduction
 - 4 Findings
- 12 What is the primary advantage of RAD?
- 1 Systems can be developed more quickly with significant cost savings
 - 2 The company's strategic business needs are emphasised and the mechanics of the system are not stressed
 - 3 The decelerated time cycle allows more time to develop quality, consistency and design standards
 - 4 Analysts are free to ignore some user requirements
- 13 Which one of the following does RAD rely heavily on?
- 1 Object-oriented methods
 - 2 Agile methods
 - 3 SDLC
 - 4 Prototyping
- 14 Which one of the following is a typical example of a system requirement for the performance category?
- 1 The purchasing system must provide suppliers with up-to-date specifications
 - 2 Each input form must include date, time, product code, customer number and quantity
 - 3 The manager of the sales department must approve orders that exceed a customer's credit limit
 - 4 The student records system must produce class lists within five hours after the end of registration
- 15 What name is given to the choice between developing versus purchasing software decision?
- 1 Build or make
 - 2 Transactional
 - 3 Subscription
 - 4 Build or buy
- 16 Which of the following is not a guideline to follow when determining data entry and storage considerations?
- 1 Data should be entered into the system where and when it occurs
 - 2 Data should be verified when it is entered
 - 3 Data duplication should be encouraged

- 4 Data should be entered into a system only once
- 17 In an approach called _____ prototyping, systems analysts use prototyping to verify user requirements, after which the prototype is discarded and implementation continues
- 1 discard
 - 2 trash
 - 3 design
 - 4 recycled
- 18 In order to study the systems request and recommend specific action a systems analyst conducts _____ investigation
- 1 a preliminary
 - 2 a systems
 - 3 an appendix
 - 4 a transitional
- 19 Which one of the following describes the estimated costs of a proposed system, which includes ongoing support and maintenance costs, as well as acquisition costs?
- 1 CRM
 - 2 JIT
 - 3 TCO
 - 4 RFID
- 20 When planning an information system, a company must consider how a new system will interface with older systems, which are called _____
- 1 enterprise applications
 - 2 operating applications
 - 3 network operating systems (NOS)
 - 4 legacy systems
- 21 Which one of the following software controls the flow of data, provides data security and manages network operations?
- 1 Enterprise software
 - 2 Application software
 - 3 System software
 - 4 Legacy software
- 22 User productivity systems _____
- 1 provide job-related information to users at all levels of a company
 - 2 simulate human reasoning by combining a knowledge base and inference rules that determine how the knowledge is applied
 - 3 process data generated by day-to-day business operations

- 4 include e-mail, voice mail, fax, video and web conferencing, word processing, automated calendars, database management, spread sheets, desktop publishing, presentation graphics, company intranets, and high-speed internet access
- 23 Which of the following models describes the information that a system must provide?
- 1 Process model
 - 2 Business model
 - 3 Data model
 - 4 Network model
- 24 Which phase of the SDLC aims to build a logical model of the new system?
- 1 Systems analysis phase
 - 2 Systems design phase
 - 3 Systems implementation phase
 - 4 Systems support and security phase
- 25 When building an information system, all of the following basic guidelines should be considered except _____
- 1 stick to an overall development plan
 - 2 identify major milestones for project review and assessment
 - 3 provide accurate and reliable cost and benefit information
 - 4 ensure that users are not involved in the development process
- 26 Which one of the following is a hardware-based security control?
- 1 Passwords
 - 2 Coding data
 - 3 Various levels of user access
 - 4 Biometrics identification
- 27 When assessing priorities for systems requests, a systems analyst should look for high scores in all of the following EXCEPT _____
- 1 Will the proposed system serve customers better?
 - 2 Will the proposed system reduce costs?
 - 3 Will the proposed system serve the organisation better?
 - 4 Will the proposed system decrease revenue for the company?
- 28 What name is given to a requirement or condition that a system must satisfy or an outcome that a system must achieve?
- 1 Condition
 - 2 Impediment
 - 3 Constraint
 - 4 Obstacle

- 29 Which of the following is a CASE tool?
- 1 Internet Explorer
 - 2 Visible analyst
 - 3 Java
 - 4 Data flow diagram (DFD)
- 30 In the preliminary investigation report, the _____ section contains the results of the preliminary investigation, including a description of the project's scope, constraints, and feasibility
- 1 appendix
 - 2 case for action
 - 3 introduction
 - 4 findings
- 31 Some firms offer _____ which provide powerful web-based support for transaction such as order processing, billing, and customer relationship management
- 1 Cloud computing
 - 2 Middleware
 - 3 Intranet based services
 - 4 Internet based services
- 32 A practice whereby a company shift IT development, support, and operations to another country is called?
- 1 Outsourcing
 - 2 Offshore outsourcing
 - 3 Business process outsourcing
 - 4 Managed hosting
- 33 Which one of the following is not one of the ways to customise a software package?
- 1 Negotiate with the software vendor for a discounted fee with a longer term contract
 - 2 Purchase a basic package that vendors will customise to suit your needs
 - 3 Negotiate directly with the software vendor to make enhancements to meet your needs by paying for the changes
 - 4 Purchase the package and make your own modifications, if it is possible under the terms of the software licence
- 34 When designing a system, certain design considerations have to be taken into account, they include_____
- 1 Users, shareholders and competitors
 - 2 Users, data, and system architecture
 - 3 Data, Models and Systems
 - 4 Data, Models and architecture

- 35 Which one of the following is NOT required by managers in order for them to understand the full cost impact and timetable of a project?
- 1 Time figures for the next development phase
 - 2 Cost figures for the next development phase
 - 3 An estimate for the overall project
 - 4 The name of the people who will work on the next development phase
- 36 Which types of questions encourage spontaneous and unstructured responses?
- 1 Open-ended questions
 - 2 Leading questions
 - 3 Closed-ended questions
 - 4 Range-of-response questions
- 37 Which of the following is NOT a guideline for designing questionnaires?
- 1 Arrange the questions from simple to more complex
 - 2 Include a section for general comments
 - 3 Pilot the questionnaire
 - 4 Use question that give clues to expected answers
- 38 Which of the following refers to producing a full-featured, working model of an information system?
- 1 Prototyping
 - 2 Coding
 - 3 Outsourcing
 - 4 Benchmarking
- 39 Which of the following outsourcing fee models charges a variable fee based on the volume of transactions or operations performed by the application?
- 1 Method
 - 2 Transaction
 - 3 Administrative
 - 4 Interpolated
- 40 A method that is primarily used for obtaining information during the preliminary investigation
- 1 Analyse organisation charts
 - 2 Review documentation
 - 3 Conduct interviews
 - 4 Observe operations

SECTION B

[60]

- 1 Briefly describe the following with respect to DFDs
 - 1 1 Structured English (2)
 - 1 2 Decision tree (2)
- 2 The goal of system design is to build systems that are effective, reliable and maintainable. Briefly explain each of these three factors (3)
- 3 What is Human-Computer Interaction (HCI)? (1)
- 4 What are the seven habits of successful interface designers? (4)
- 5 What is ISO 9241-11 standard definition of usability with respect to computer interfaces? (2)
- 6 Why is prototyping important for users during system design? (2)
- 7 Briefly describe each of the following with respect to managing system support and security
 - 7 1 Perfective maintenance (2)
 - 7 2 Configuration management (2)
 - 7 3 Fault management (2)
 - 7 4 Incremental backup (2)
 - 7 5 The three interactive tasks of risk management (briefly describe each) (3)
- 8 What is the difference between a context diagram and diagram 0? Which symbol is not used in a context diagram? (3)
- 9 What is the purpose of decision tables? Why would a manager prefer decision tree instead of a decision table? (4)
- 10 Draw a Data Flow from Process to External Entity (2)
- 11 What is the difference between an operational environment and a test environment? (2)
- 12 Suppose you are a systems analyst developing a detailed test plan. Explain the testing strategies you will use in your plan. Will you use live or simulated data? (5)

- 13 Explain the concept of risk management, including risk identification, assessment, and control (8)
- 14 Describe 4 types of system maintenance and provide two examples of each type? (8)
- 15 What is configuration management and why is it important? (3)