

**9628-02 Level 4 Diploma in Software Language (for the Level 4
Software Developer Apprenticeship)**
9628-402 Software Language

Sample question paper

Duration: 60 minutes

Candidate's name:

Candidate's enrolment number:

Centre name:

Centre number:

Date:

- 1 Which one of the following **must** be completed between the systems analysis and coding stages of a large scale software development project?
 - a. A comprehensive design stage.
 - b. A comprehensive testing stage.
 - c. An in-depth analysis stage.
 - d. An in-depth requirements stage.
- 2 Which one of the following is a feature of Object Oriented design?
 - a. Functional analysis of coding elements.
 - b. An entity based approach, following a visual methodology.
 - c. A procedural approach to programming using visual elements.
 - d. The deliberate designed reuse of programming components.
- 3 Why are different software design approaches used?
 - a. To comply with ISO requirements.
 - b. To adhere to project delivery phases.
 - c. To meet all customer stated expectations.
 - d. To maintain mandatory IEEE regulatory compliance.
- 4 Which one of the following design considerations **must** be made when designing a system for easy long-term code maintenance?
 - a. Use a modular structure when writing software.
 - b. Program for maximum performance efficiency.
 - c. Create an exceptionally user-friendly interface.
 - d. Use the most recently released programming language.
- 5 Why is isolated simulated testing essential in the deployment of some new systems being developed?
 - a. To check the live environment performance.
 - b. To detect if the software can be compromised via the internet.
 - c. To check for bugs that can only be discovered by modelling.
 - d. To detect if open source libraries have been used.
- 6 Which one of the following **best** explains the use of a design pattern in software development?
 - a. Utilising the same solution for all system code.
 - b. Applying a reusable solution to a common problem.
 - c. Replicating coding standards from a previous project.
 - d. Following the same template in all interface specifications.
- 7 Which one of the following **best** describes the use of encapsulation in object oriented design?
 - a. Creating code that can be easily inherited from other classes.
 - b. Creating code where a sub-class can act in place of its super class.
 - c. Creating a mechanism for restricting direct access to internal components.
 - d. Creating a methodological approach to the maintenance of long-standing instances.
- 8 Which one of the following statements **best** explains the use of abstraction in object oriented design?
 - a. Creating code that hides everything except relevant information.
 - b. Creating code that includes clear polymorphic references.
 - c. Creating code that can be easily reused in different systems.
 - d. Creating code that uses encapsulated interfacing.
- 9 Which one of the following is a benefit of low coupling in software development?
 - a. When a polymorphic entity can adapt to new overloaded methods.
 - b. When a sub-class can accept or reject code from a super class.
 - c. When an update can be accomplished with all elements synchronised.
 - d. When a reduction of interdependence of objects is achieved.

- 10 Which one of the following is a benefit of component reuse in software design?
- It allows for a larger application memory footprint.
 - It simplifies the structure of a program.
 - It allows better user accessibility.
 - It affords faster performance of applications.
- 11 Which one of the following is a rationale for using standard patterns as part of design methodology?
- It will allow all developers to understand the code.
 - It will make the software fully secure.
 - It can reduce the development time.
 - It can confer full ownership of the source code.
- 12 Which one of the following is a disadvantage of structured programming?
- It may limit the mechanics of modular design.
 - It may introduce inefficiencies into the design process.
 - It can prevent good design principles from being followed.
 - It can introduce additional latency into the software.
- 13 Which one of the following is a benefit of using object oriented programming?
- It enables code reuse.
 - It uses closed standards.
 - It links different languages.
 - It does not require variables.
- 14 Variables often make debugging of programmes difficult as their values constantly change. Which programming paradigm eliminates this issue in **most** cases?
- Structured programming.
 - Functional programming.
 - Procedural programming.
 - Object oriented programming.
- 15 Which one of the following statements **best** explains code reuse within a structures programming paradigm?
- Support of object inheritance.
 - Support of coded subroutines.
 - Support for polymorphic code.
 - Support for overloaded code.
- 16 Which one of the following statements **best** explains code reuse within object oriented programming?
- The creation of reusable procedural functions.
 - The creation of reusable entity relationships.
 - The creation of reusable subroutines.
 - The creation of reusable classes.
- 17 How is maintenance simplified in a multi-threaded environment by using a Functional Programming paradigm?
- Different processes do not have states.
 - Different processes monitor each other.
 - Various objects can run on different processes.
 - Subroutines can be spawned by different processes.
- 18 Why **must** security be considered as a requirement in the software development cycle?
- To ensure system integrity.
 - To ensure code compatibility.
 - To ensure business continuity.
 - To ensure ANSI standards are met.
- 19 Which one of the following **best** explains the principle of 'least privilege' in software development?
- Allowing the superuser the opportunity to reallocate rights based on processor load.
 - Enabling any user to acquire the appropriate rights based on their granted authority.
 - Offering the operating system the ability to reduce the rights of any given process.
 - Being able to only access the information and resources required for a given task.
- 20 Which one of the following is the **most** secure option when working on a software development project?
- Reusing previously tested code.
 - Creating code from scratch.
 - Using public code libraries.
 - Installing a rootkit defence.

- 21 Which one of the following is a suitable security threat mitigation when writing software?
- Implement an agile coding principle using scrum techniques.
 - Consider compilation warnings as advisory information.
 - Ensure that the code follows object oriented standards.
 - Ensure that any privileges are by default set to deny access.
- 22 Which one of the following **must** be considered when testing software to ensure that it meets security standards?
- Infect the system with known malware and observe the results.
 - Model commonplace threats to discover if the code is vulnerable.
 - Create a new change request based on the current coding implementation.
 - Allow the wider community to threat assess the code via code sharing sites.
- 23 Which one of the following **must** be considered post deployment when implementing a software development lifecycle?
- Sufficient first line support via chat bots, in person, on the phone and via email.
 - Long term planning for the next version and setting user expectations.
 - An effective, visible and understood product maintenance plan.
 - The documentation is robust and readily available for users.
- 24 Which one of the following **best** identifies the activities in the maintenance phase of the software development lifecycle?
- Support software and plan for updates.
 - Manage and keep documentation up to date.
 - Add new features to applications and test.
 - Revise code and associated deployment.
- 25 Which one of the following statements **best** describes an essential element of software maintenance?
- Ensuring that the documentation is current, comprehensive and usable.
 - Verifying that the help desk can respond to all queries 365 days per year.
 - Ensuring that any patches can be installed offline for sandbox testing.
 - Verifying that all reported bugs are compiled into an easy to read database.
- 26 Why is comprehensive software documentation essential?
- It mitigates any possible future cyber attacks.
 - It creates a legal remedy in case of possible litigation.
 - It allows project handover to other teams post development.
 - It guides first line support when faced with customer queries.
- 27 Which one of the following **best** describes the rationale for standards compliance when maintaining software?
- It meets legislative requirements for the upkeep of any secure systems.
 - It assures that the support process has been followed consistently.
 - It ensures that the software is resilient in the face of a cyber attack.
 - It allows for rapid redeployment of future software updates.

- 28 Which one of the following is the **most** efficient way to identify the highest value in a random collection of unique numbers?
- Carry out a bubble sort, ordering from the smallest to largest number.
 - Iterate over the entire collection once, storing the largest number found.
 - Allocate each number different indices, in the order they are arranged.
 - Store each number from the smallest to largest then conduct a binary search.
- 29 Which one of the following is a use of a hashing algorithm?
- To compress files.
 - To ensure integrity of data.
 - To encrypt stored data.
 - To ensure quality of service.
- 30 Which one of the following techniques can be used to create abstractions that represent a problem?
- Agile.
 - NAT.
 - Kanban.
 - UML.
- 31 Which one of the following algorithms can be used to securely represent a plain text string such as a system password?
- Encryption.
 - Hashing.
 - IPSec.
 - Bitlocker.
- 32 What is the **main** use of functions?
- To optimise sub-routine code.
 - To allow properties to be defined.
 - To hold data for long-term storage.
 - To allow the re-use of code for a specific task.
- 33 Which one of the following is a use of mathematical notions?
- To encrypt data.
 - To design algorithms.
 - To implement code.
 - To create a UML model.
- 34 Which one of the following **best** describes the stack structure when storing data?
- An entity that allows data to be managed by complex relational algebra.
 - An entity that allows data to be managed by a first in first out principle.
 - An entity that allows data to be managed by a linked list.
 - An entity that allows data to be managed by a last in first out principle.
- 35 What does a binary search depend on for the search to be effective?
- The array elements must be sorted.
 - The data set is a delineated list.
 - The array elements must be of different types.
 - All data items use the same file format.
- 36 Which one of the following is considered to be the **slowest** sorting algorithm?
- Merge sort.
 - Bubble sort.
 - Insertion sort.
 - Selection sort.
- NOW GO BACK AND CHECK YOUR WORK**
- IMPORTANT - Are the details at the top of the answer sheet correct?