higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

SYSTEM ANALYSIS AND DESIGN
NQF LEVEL 4

7 November 2022

This marking guideline consists of 13 pages.

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SECTION A

QUESTION 1

1.1	1.1.1	B		
	1.1.2	A		
	1.1.3	B		
	1.1.4	A		
	1.1.5	D		
	1.1.6	A		
	1.1.7	C		
	1.1.8	B		
	1.1.9	B		
	1.1.10	D		
			(10 × 1)	(10)
1.2	1.2.1	True		
	1.2.2	False		
	1.2.3	True		
	1.2.4	False		
	1.2.5	False		
	1.2.6	True		
	1.2.7	False		
	1.2.8	True		
	1.2.9	True		
	1.2.10	True		
			(10 × 1)	(10)
1.3	1.3.1	American National Standards Institute		
	1.3.2	American Standard Code for Information Interchange		
	1.3.3	Chief Information Security Officer		
	1.3.4	Information Technology Association		
	1.3.5	Optical Character Recognition		
	1.3.6	Quality Assurance		
	1.3.7	Senior Business Analyst		
	1.3.8	Virtual Private Network		
	1.3.9	Rational Unified Process/Responsible Use Policy		
	1.3.10	Mangement information system		
			(10 × 1)	(10)
1.4	1.4.1	B		
	1.4.2	O		
	1.4.3	G		
	1.4.4	N		
	1.4.5	I		
	1.4.6	S		
	1.4.7	A		
	1.4.8	P		
	1.4.9	K		
	1.4.10	E		
			(10 × 1)	(10)
				[40]
			TOTAL SECTION A:	**40**

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SECTION B

QUESTION 2

2.1 Searching through the customer's personal data. (1)
Or
Asking to supply the user with pirated software

2.2
- The technician is behaving unethically and unmorally by searching through the customer's personal data.
- The technician does not have the customer's consent to search through their personal data.

Or
- Distributing licenced software without paying for it is a crime
- The software is not freeware and cannot be distributed using pirated software (2)

2.3 Performing a backup of personal and important data. (1)

2.4
- Pirated software is more likely to be infected with serious malware, which can damage the user's computer system.
- Pirated software is excluded from critical security updates thereby exposing the system to more vulnerabilities.
- Increased chances that the software will malfunction or fail.
- Forfeited access to support for the program such as training, upgrades, customer support and bug fixes.
- No warranty and the software can't be updated.
- Legal repercussions due to copyright infringement. (Any 2 × 2) (4)

2.5 A data breach is a security violation in which sensitive, protected or confidential data is copied, transmitted, viewed, stolen or used by an unauthorised individual. (2)

2.6
- The customer can use two-factor authentication.
- The customer can make use of biometric authentication.
- The customer can make use of a longer password that includes numbers, symbols and uppercase letters. (Any 2 × 2) (4)

2.7
- To comply with legislation
- To mitigate risks
- To prevent violations of ethics

(Any 2 × 1) (2)

2.8
- The Institute of Chartered IT Professionals (ICITP-SA)
- The Information Technology Association of South Africa (ITA)
- The Institute of IT Professionals South Africa (IITPSA)
- Women in IT (WIIT) South Africa is a chapter of IITPSA
- The Black IT Forum (BITF) (Any 2 × 1) (2)

2.9 2.9.1 Fingerprint reader/scanner (1)

2.9.2 Is a security process that relies on the unique biological characteristics of individuals to verify they are who they say they are. (1)

[20]

QUESTION 3

3.1 3.1.1 A person who uses either a smartphone or laptop/notebook (2)

3.1.2
- Observation
- Documentation review
- Sampling
- Prototyping (Any 3 × 1) (3)

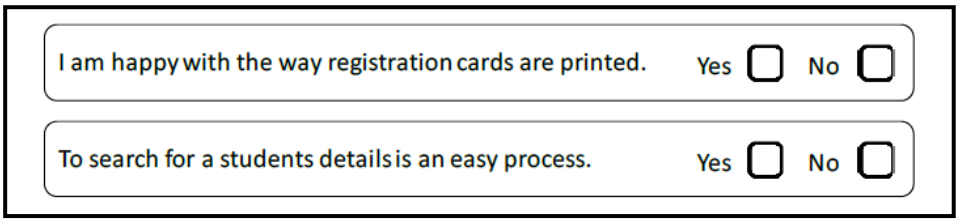
3.1.3
- Questions must be kept brief and user-friendly.
- Provide clear instructions that will answer all the questions.
- Arrange questions in logical order, from simple to complex topics.
- Use simple terms and words to avoid misunderstanding.
- Try not to lead responses or questions that give clues to expected answers.
- Limit the use of open-ended questions that are difficult to tabulate.
- Limit the use of questions that can raise concerns about job security or other negative issues.
- Include a section at the end of the questions for general comments.
- Test the questionnaire wherever possible on a small test group before finalising and distributing it to a large group.

(Any 2 × 1) (2)

3.1.4
- Dichotomous or two-point questions (e.g., 'Yes' or 'No', 'Unsatisfied' or 'Satisfied', checkbox questions)
- Multiple choice questions (e.g., A, B, C or D)

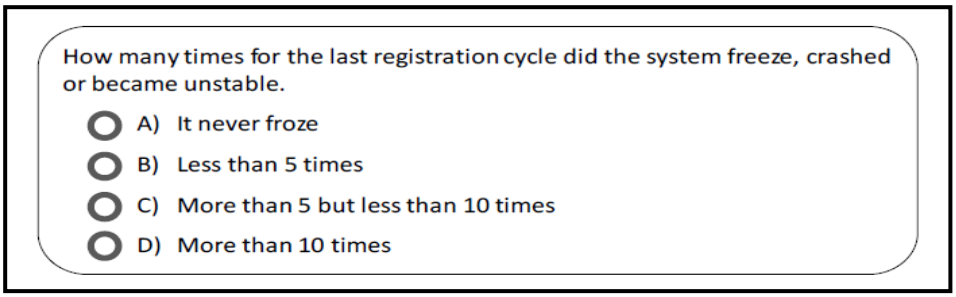
(2 × 1) (2)

3.1.5 Example of a dichotomous or two-point question (checkbox question) related to the scenario:



Allocate 1 mark for a related relevant question (only ONE required) and 1 mark for the correct construct of the presentation of the question. (1 + 1) (2)

Example of a multiple-choice question related to the scenario:



Allocate 1 mark for a related relevant question (only ONE required) and 1 mark for the correct construct of the presentation of the question. (1 + 1) (2)

3.1.6 The main benefit of using online surveys is that they increase productivity by saving time as opposed to having interviews with many learners.

Data is instantly available and can easily be transferred into specialised statistical software or spreadsheets when more detailed analysis is needed. (2 × 2) (4)

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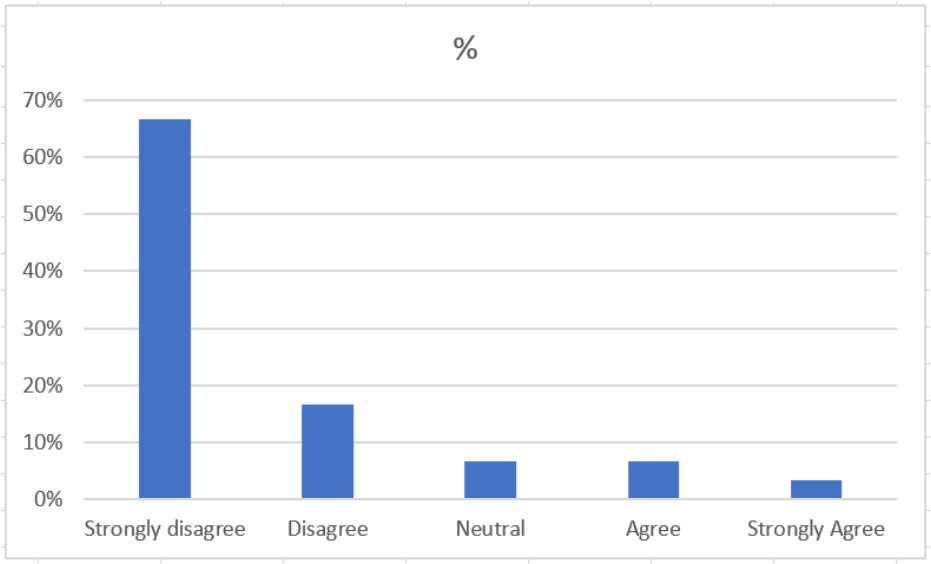
3.1.7



Mark allocation

1 mark for x-axis (Likert options)	1
1 mark for y-axis (percentages)	1
2 marks for data	2

(4)

3.2

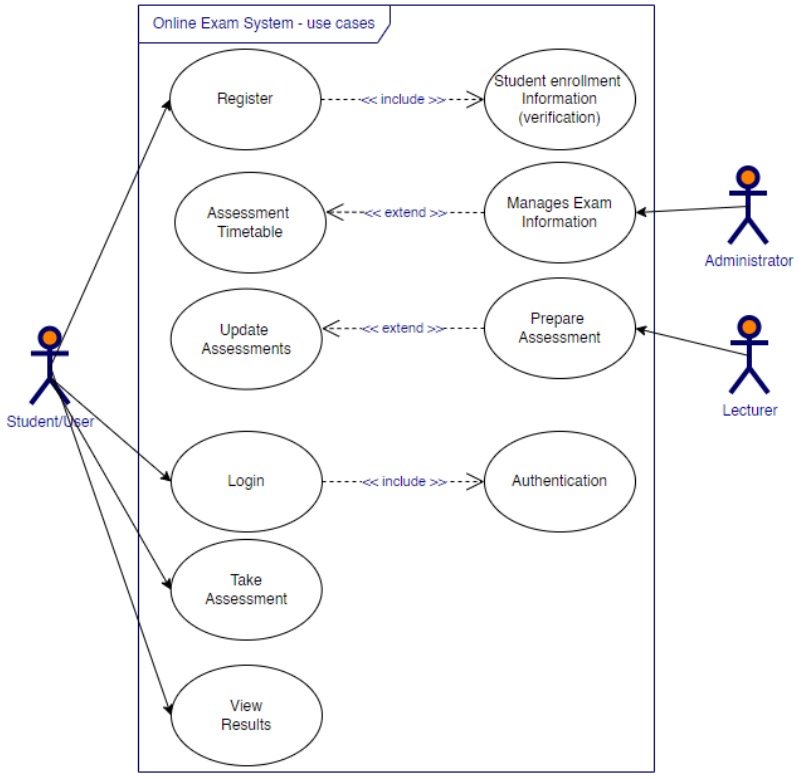
- Bank statements
- Cash register tape
- Credit card receipt
- Lockbox check images
- Packing slip
- Sales orders
- Invoices
- Time card
- Sales receipts
- Purchase orders

(Any 3 × 1) (3)

[24]

QUESTION 4

4.1 4.1.1

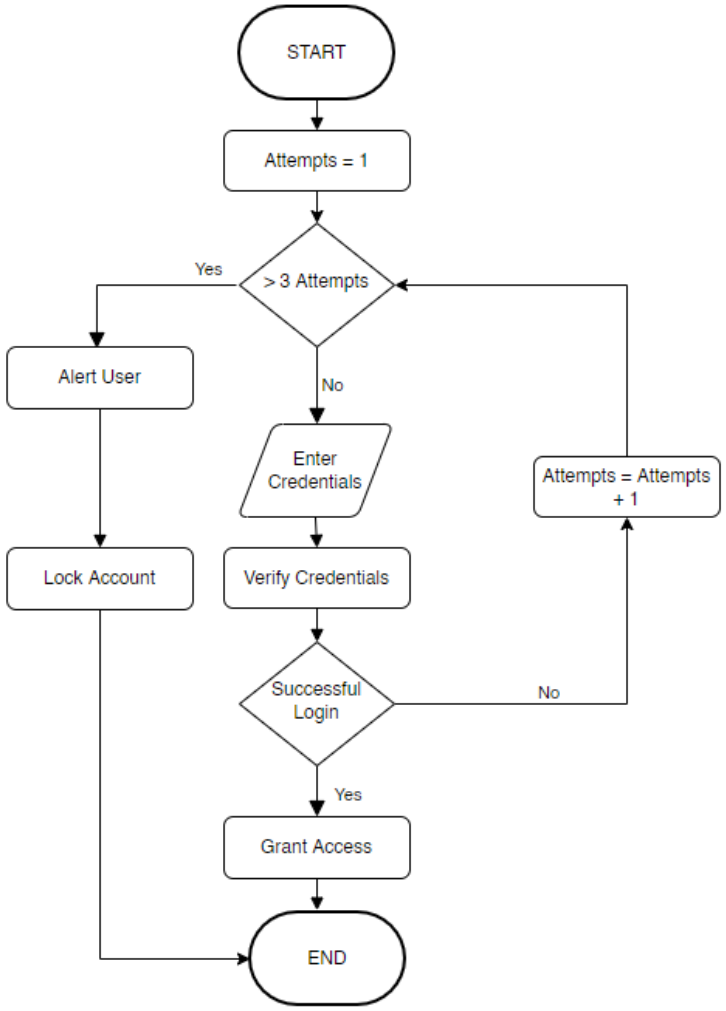


Mark allocation

1 mark for the actors	3
1 mark for system boundary	1
1 mark per use case (to a maximum of 7)	7
2 marks for associations between all actors and the applicable use cases	2
2 marks for the correct use of the include dependency	2
2 marks for the correct use of the extend dependency	2

(17)

4.1.2



Mark allocation

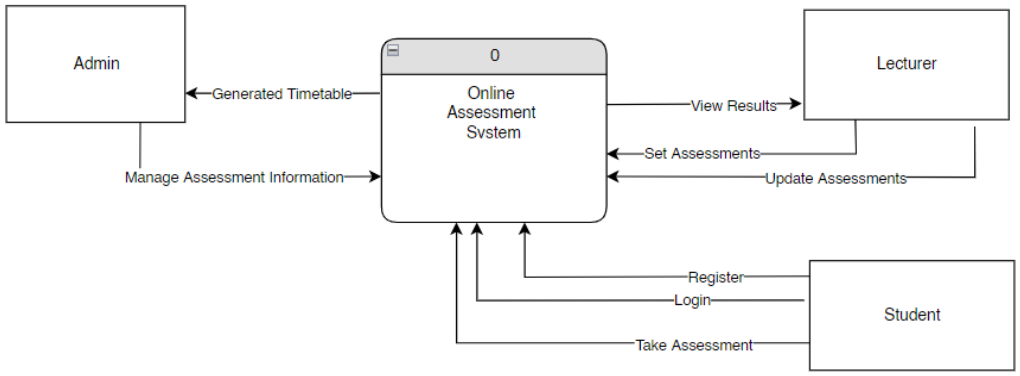
1 mark per terminator	2
1 mark per decision	2
2 marks for indicating input	2
1 mark per process	4
2 marks for the correct use of flow lines	2

(12)

4.1.3 (a) Student
(b) Student Number
(c) String
(d) Take Assessment ()

(4 × 1) (4)

4.1.4

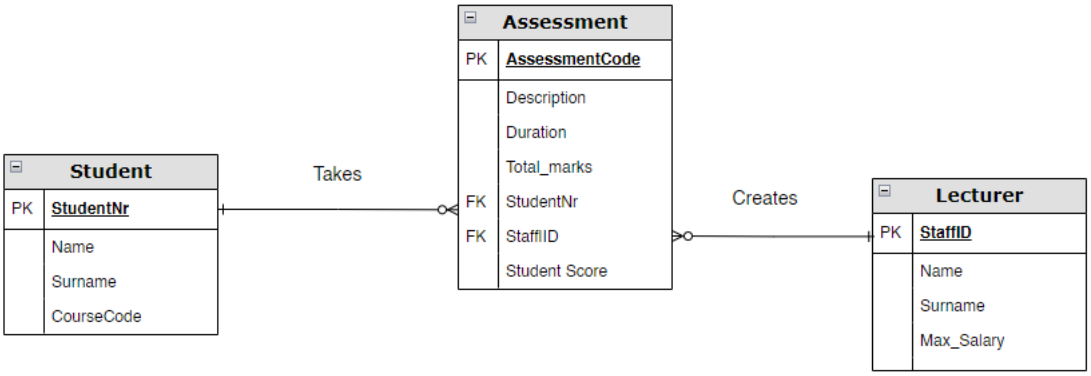


Mark allocation

1 mark for the main process indication L0	1
1 mark for using the correct process symbol	1
1 mark per entity	3
1 mark for using the correct symbol for an entity	1
1 mark per correct data flow (up to 6 marks)	6

(12)

4.2



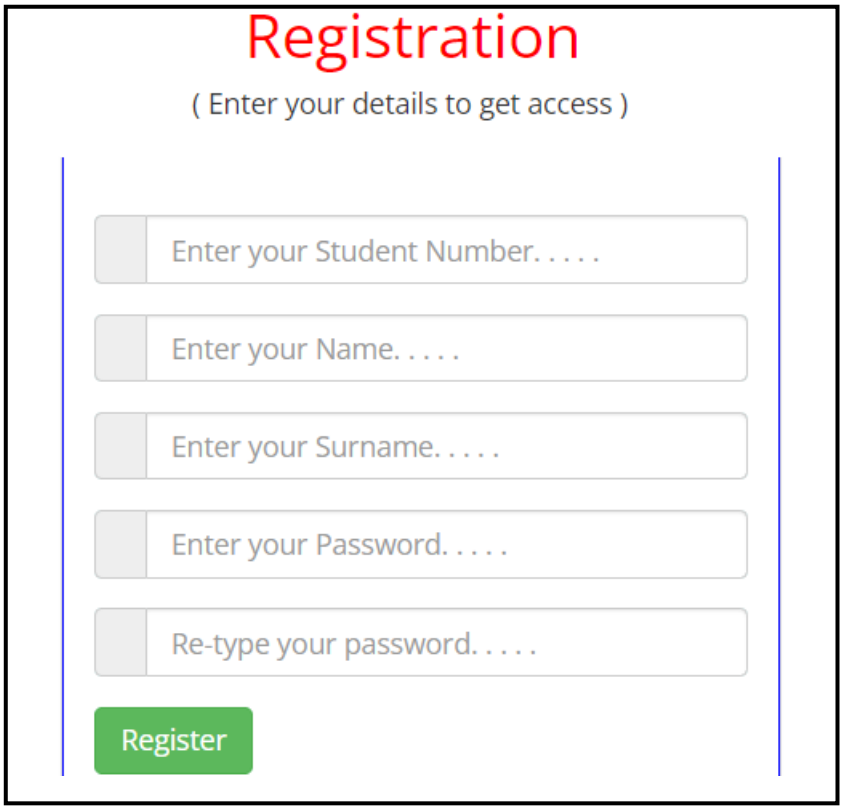
Mark allocation

1 mark per entity	3
1 mark per relationship name	2
3 marks for all primary keys	3
2 marks for all foreign keys	2
1 mark for the correct cardinality between Student and Assessment 	1
1 mark for the correct cardinality between Assessment and Lecturer	1
3 marks for indicating other fields (one per entity)	3

(15)
[60]

QUESTION 5

5.1



NOTE: This question is open to interpretation as it relates to a design.

Mark allocation

1 mark for wireframe with title	1
3 marks for student number, name and surname text boxes	3
2 marks for password and confirm password text boxes	2
1 mark for registration button	1

(7)

5.2 5.2.1 (a) The mechanisms that allow the user and a computer system to interact, in particular the use of input devices and software.

(b) An application that runs on a stand-alone computer such as a desktop or laptop computer.

OR

In Windows, a desktop application is one that runs on the traditional Windows desktop computer.

OR

A desktop application means any software that can be installed on a single computer (laptop or a desktop) and used to perform specific tasks.

(c) An adaptive user interface is a user interface that can change its design, controls, information and other aspects of its appearance and behaviour to match user requirements.

(d) An image or set of images and illustrations which displays the functional elements of a website or page, typically used for planning a site's structure and functionality.

(e) User experience refers to the quality of experience a person has when interacting with a specific design.

OR

User experience refers to the overall experience of a person using a product such as a website or computer application, especially in terms of how easy or pleasing it is to use.

(5 × 2) (10)

5.2.2

- **Touch Screens**
  A touch screen is a display device that allows the user to interact with a computer using their finger or stylus. It is a useful alternative to a mouse or keyboard for navigating a GUI (graphical user interface).
  Touch screens are used on a variety of devices, such as computer and laptop displays, smartphones, tablets, cash registers, and information kiosks.
  Some touch screens use a grid of infrared beams to sense the presence of a finger instead of utilising touch-sensitive input.

- **Facial Recognition**
  Facial recognition is a type of biometric security that maps the facial features of an individual.
  Facial recognition works by comparing selected facial features from a given image with faces within a database.
  Facial recognition is typically employed to authenticate users through ID verification services.

- **Gesture Recognition**
  Gesture recognition is an alternative user interface for providing real-time data to a computer.
  Instead of typing with keys or tapping on a touch screen, a motion sensor perceives and interprets movements as the primary source of data input.

- **Voice**
  Voice recognition, or speech recognition, is a computer technology that uses audio input for entering data rather than a keyboard. Typically, speech recognition identifies the words you use. You can search for a video on YouTube without typing or turn on a smart TV without clicking a button.
  Voice recognition takes it one step further, ensuring that only your voice can be used for identification. (3 × 2) (6)

5.2.3

- Strive for consistency. (3)

- Cater to universal usability.
- Offer informative feedback.
- Design dialogs to yield closure.
- Prevent errors.
- Permit easy reversal of actions.
- Support internal locus of control.
- Reduce short term memory load. (Any 3 × 1)

5.3 5.3.1
- The report should include a header to show the purpose of the report.
- The columns should have headers to state wat each field means.

(2 × 1) (2)

5.3.2 No (1)

5.3.3 It can be derived from the date of employment field. (1)

5.3.4 Filtering allows the user to hide irrelevant data based on your defined conditions. (2)

In the given example only rangers that match the selected type will be listed (the other records will be filtered out)

[32]

QUESTION 6

6.1 6.1.1 Beta testing is a type of user acceptance testing where the product team gives a nearly finished product to a group of target users to evaluate product performance in the real world.

6.1.2 Big bang adoption is when a new system is adopted instantly, with no transition period between the old and new systems.

6.1.3 Phased adoption is a strategy of implementing an innovation in an organisation in a phased way, so that different parts of the organisation get implemented in different subsequent time slots.

(3 × 2) (6)

6.2 With a pilot implementation, a subset of the organisation (called a pilot group) starts using the new system before the rest of the organisation whereas with parallel adoption, the old and new systems are used simultaneously for a limited period of time. (2 × 2) (4)

6.3
- Usability
- Functionality
- Productivity
- Compatibility (Any 2 × 1) (2)

[12]

QUESTION 7

7.1 The agile methodology is a way to manage a project by breaking it up into several phases.

OR

The agile methodology is a collection of principles that value adaptability and flexibility. (2)

7.2
- Kanban
- Scrum
- Extreme programming
- Crystal
- Dynamic Systems Development Method (DSDM) (Any 2 × 1) (2)

7.3
- Planning
- Development
- Testing
- Deploying
- Monitoring (5)

7.4
- Individuals and interactions over processes and tools;
- Working software over comprehensive documentation;
- Customer collaboration over contract negotiation; and
- Responding to change over following a plan. (Any 3 × 1) (3)

[12]

TOTAL SECTION B: 160
GRAND TOTAL: 200