

SQA Advanced Unit specification: general information

This Graded Unit has been validated as part of the SQA Advanced Certificate in Computing. Centres are required to develop the assessment instrument in accordance with this validated specification. Centres wishing to use another type of Graded Unit or assessment instrument are required to submit proposals detailing the justification for change for validation.

Graded Unit title: Computing: Graded Unit 1

Graded Unit code: HR9J 47

Type of Graded Unit: Examination

Assessment Instrument: Closed-book

Publication date: August 2017

Source: Scottish Qualifications Authority

Version: 01

Unit purpose

This Graded Unit is designed to provide evidence that the candidate has achieved the following principal aims of the SQA Advanced Certificate in Computing:

- ◆ to develop the candidate's knowledge and skills such as planning, analysing and synthesising
- ◆ to develop study and research skills
- ◆ to enable progression within the Scottish Credit and Qualifications Framework
- ◆ to provide academic stimulus.

Recommended prior knowledge and skills

It is recommended that the candidate should have completed or be in the process of completing the following Units relating to these specific aims prior to undertaking this Graded Unit:

HP1T 47 Computer Systems Fundamentals
HP1R 47 Developing Software: Introduction
HP29 47 Professionalism and Ethics in Computing
HP1V 47 Troubleshooting Computing Problems

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Credit points and level

1 SQA Credit at SCQF level 7: (8 SCQF credit points at SCQF level 7*)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from National 1 to Doctorates.*

Core Skills

There are no Core Skills embedded in this Graded Unit specification.

Assessment

This examination-based Graded Unit is a timed closed-book examination. It will consist of a written examination lasting 3 hours.

The assessment exemplar for this Unit provides assessment and marking guidelines that exemplify the national standard for achievement. It is a valid, reliable and practicable Instrument of Assessment. Centres wishing to develop their own assessments should refer to the assessment exemplar to ensure a comparable standard. Assessment exemplars are available on SQA's secure website.

Unit specification: instructions for designing the assessment task and assessing candidates

Graded Unit title: Computing: Graded Unit 1

Conditions of assessment

The assessment is based on a written examination lasting 3 hours.

If a candidate does not achieve a pass or if a candidate wishes to upgrade, this must be based on a significantly different examination from that given originally. A candidate's grade will be based on his/her achievement in the new assessment event using a significantly different examination, if this results in a higher grade.

The examination should be unseen and the assessment should be conducted in controlled and invigilated conditions.

No reference material should be allowed into the examination room. The examination should take place under closed-book conditions. Calculators are not permitted. All examination question papers, scripts and rough working must be returned to the invigilator at the end of the examination.

The assessment event will normally be taken in one sitting. If part of the assessment is conducted online the centre must ensure that the integrative (Section 2) aspect of the Graded Unit is not compromised.

Where any e-assessment is employed, this should be undertaken in line with SQA Requirements and Guidelines on e-assessment. Information on this is available on the e-assessment section of SQA website www.sqa.org.uk to which reference should be made.

At all times, the security, integrity and confidentiality of examinations must be ensured.

Instructions for designing the assessment task

The examination should be designed to assess the candidate's critical knowledge and understanding of the topics relating to the specific aims which this Graded Unit is designed to cover. The questions and corresponding marks should be designed in accordance with the ranges indicated in the table that follows. However, the overall total mark for the examination is 100.

The question paper will consist of three sections, totalling 100 marks (100%).

- ◆ Section 1 will be worth 15% of the total marks.
- ◆ Section 2 will be worth 15% of the total marks.
- ◆ Section 3 will be worth 70% of the total marks.

The sections will be differentiated by content and level of demand which will be reflected in the type of question used in each section.

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Section	Type of question	No of questions	Marks per question	Total marks
1	Selected response	15	1	15
2	Constructed response	1 (mandatory)	15	15
3	Constructed response	7 from 8	10	70

The format of the **selected response** questions will be limited to:

- ◆ multiple choice questions (MCQs) — a maximum of **four** out of the **five** questions for each topic
- ◆ multiple response questions (MRQs) — a maximum of **two** out of the **five** questions for each topic

The majority of the questions will be MCQs, consisting of a single key and three distractors (four options in total). A minority of the questions will be MRQs, consisting of two or more keys, selected from four options.

All **constructed response** questions will consist of extended response questions which will provide candidates with an opportunity for extended writing on a specific topic. Each section will be designed as follows:

Section 1 — Selected response questions		
Key topics	Level of demand	Percentage weighting for each topic
Computer Systems Fundamentals	Ability to demonstrate fundamental knowledge and understanding introduced in the three Units.	Five questions each worth 1 mark (5% of total)
Developing Software: Introduction		Five questions each worth 1 mark (5% of total)
Professionalism and Ethics in Computing		Five questions each worth 1 mark (5% of total)

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Section 2 — Constructed response questions		
Key topics	Level of demand	Percentage weighting for each topic
Integrated question incorporating at least two of the following Units (mandatory): Computer Systems Fundamentals Developing Software: Introduction Professionalism and Ethics in Computing Troubleshooting Computing Problems	Application, analysis, synthesis and evaluation	One question worth 15 marks (15% of total)

Section 3 — Constructed response questions		
Key topics	Level of demand	Percentage weighting for each topic
Computer Systems Fundamentals	Knowledge, comprehension, application and analysis	Two questions each worth 10 marks.
Developing Software: Introduction	Knowledge, comprehension, application, analysis, synthesis and evaluation	Two questions each worth 10 marks.
Professionalism and Ethics in Computing	Knowledge, comprehension, application, analysis, synthesis and evaluation	Two questions each worth 10 marks.
Troubleshooting Computing Problems	Knowledge, comprehension, application and analysis	Two questions each worth 10 marks.

NOTE — The candidate will choose **seven** from **eight** questions, 70% of the total.

Section 1 (Selected response questions) — This section will focus on lower level cognitive abilities relating to knowledge retention and comprehension of essential facts and concepts.

The 15 marks (15% of the overall total) contributed by this section should be distributed as follows:

Knowledge	10 marks
Comprehension	5 marks

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Section 2 (Integrated question) — will focus on the most demanding cognitive competencies.

The 15 marks contributed by this question should be distributed as follows:

Application	4 marks
Analysis	5 marks
Synthesis	4 marks
Evaluation	2 marks

Section 3 (Constructed response questions) — will focus on higher level abilities relating to more demanding cognitive competencies.

The 70 marks contributed by this section should be distributed as follows:

Knowledge	10 marks
Comprehension	10 marks
Application	10 marks
Analysis	20 marks
Synthesis	10 marks
Evaluation	10 marks

A specific paper may alter these allocations while retaining the general distribution.

Half marks must not be awarded for any question. MRQs should be marked in the same way as MCQs — either a mark is awarded or it is not. To gain a mark for an MRQ, candidates must choose all of the correct keys. MRQs should be used as discriminators to differentiate candidate performance at the upper grade boundaries.

The scores for seven of the eight questions in Section 3 will count towards the overall mark. The examination will be marked out of 100. When marking the examination, the assessor will decide on the precise mark to be given for candidates' answers to each of the questions. The marks will then be aggregated to arrive at an overall mark for the examination. After the marking of any script, the number of marks awarded for each candidate should be totalled and checked. The assessor will then assign a grade to each candidate for the Graded Unit based on the following grade boundaries:

- ◆ A = 70%–100%
- ◆ B = 60%–69%
- ◆ C = 50%–59%

There is no minimum score in any section.

Guidance on grading candidates

Candidates who meet the minimum Evidence Requirements will have their achievement graded as a C (competent), A (highly competent), or B (somewhere between A and C). The Grade Related Criteria to be used to judge candidate performance for this Graded Unit is specified in the following table:

Grade-related criteria	
Grade A	Grade C
<p>Is a seamless, coherent piece of work or exam script which consistently:</p> <ul style="list-style-type: none"> ◆ interprets and understands the question in a way which demonstrates insight and clear understanding of the topic ◆ demonstrates a comprehensive analysis and reply in their answer ◆ provides responses which are logically structured and coherently expressed demonstrating consistent use of correct terminology ◆ provides responses which are clear and well-structured throughout with language and terminology used of a consistently high standard in terms of level, accuracy and technical content ◆ consolidates and integrates required knowledge and skills linking concepts and ideas and relating answers explicitly to the question ◆ convincingly argues and shows links between experience demonstrating comprehensive knowledge and understanding as well as analysing and evaluation skills ◆ provides evidence of possible alternative approaches and arguments as well as understanding of different interpretations 	<p>Is a co-ordinated piece of work or exam script which:</p> <ul style="list-style-type: none"> ◆ interprets and understands the question in a way which enables the candidate to meet basic criteria ◆ demonstrates limited analysis, evaluation and explanation of the question and other relevant information ◆ provides responses which are uneven and convey limited understanding although some relevant points are given ◆ provides responses which are satisfactorily structured with adequate use of terminology and language, although not always consistent in terms of level, accuracy and technical content ◆ consolidates and integrates required knowledge and skills but may lack continuity and consistency and fail to show clear links to concepts and ideas ◆ argues and justifies conclusions in an acceptable way but these conclusions may lack reasoned understanding, may not link well to discussions and may show limited knowledge ◆ is likely to show only one approach and limited understanding of different interpretations

Support notes

This Unit is designed to assess the candidate's ability to demonstrate their knowledge and understanding across the range of mandatory Units within the SQA Advanced Certificate in Computing.

All candidate scripts should include their SCN (Scottish Candidate Number), candidate name, date of assessment and the question numbers attempted from Section 3.

The question paper has been split into three sections. Section 1 — is designed to assess candidates' knowledge of basic facts and is assessed through selected response questions. Sections 2 and 3 — are designed to assess deeper cognitive skills and are assessed through constructed response questions. The assessment event will normally be taken at one sitting. If part of the assessment is conducted online the centre must ensure that the integrative aspect of the Graded Unit is not compromised.

It is suggested that centres arrange for the delivery of the four underpinning Units prior to the delivery of this Unit. A suggested approach would be to revise the knowledge contained within the mandatory Units, teach examination and study techniques and provide practice questions for the candidates to attempt under examination conditions.

Sufficient time must be available for remediation and re-assessment. The centre should plan to have the first sitting of the examination of the Unit completed, marked and internally verified prior to any scheduled central verification event.

Should a centre wish to develop their own Instrument of Assessment they are strongly advised to have the assessment prior verified.

The purpose of an examination is normally to test recall, understanding, evaluation, and synthesis of knowledge.

All examinations should take place under invigilated conditions.

If the examination question paper is to be used with another group of candidates later, all copies should be returned to the invigilator. Where published SQA exemplars are used, then these must be returned to and retained by the invigilator.

All examinations should be **unseen**, ie candidates should not be given the questions in advance. This allows the examination to sample from the full range of subject/occupational content. To ensure the fairness and reliability of assessment, the actual sample used should cover the critical knowledge and skills (topics) specified in the Graded Unit specification to provide direct evidence of attainment or to allow attainment to be inferred.

The content of the examination should not be predictable, ie candidates should not be able to spot the questions in advance.

Note — Centres must ensure the security, integrity, and confidentiality of any SQA exemplar or commercially-produced question papers used for summative assessment of candidates.

Equality and inclusion

This unit specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence.

Further advice can be found on our website www.sqa.org.uk/assessmentarrangements.

History of changes to Unit

Version	Description of change	Date

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SQA acknowledges the valuable contribution that Scotland's colleges have made to the development of SQA Advanced Qualifications.

FURTHER INFORMATION: Call SQA's Customer Contact Centre on 44 (0) 141 500 5030 or 0345 279 1000. Alternatively, complete our [Centre Feedback Form](#).

General information for candidates

Graded Unit title: Computing: Graded Unit 1

The Graded Unit is designed to assess your knowledge of key facts and concepts relating to computing. The assessment is a written examination lasting 3 hours.

This Unit is the only Unit in the SQA Advanced Certificate in Computing award that is graded; all other Units are simply assessed on a pass/fail basis. You must achieve at least 50% to be awarded a pass. The grading is carried out as follows:

- ◆ A = 70% – 100%
- ◆ B = 60% – 69%
- ◆ C = 50% – 59%

The examination will be taken under supervised conditions. You are not permitted to bring any reference material into the examination room. Calculators are not permitted.

The question paper consists of three sections. Each section uses different types of questions and assesses different knowledge and skills.

Section 1

This section is worth 15% of the total marks and consists of 15 multiple choice or multiple response questions with each question being worth 1 mark. This section covers:

- ◆ Computer Systems Fundamentals (five questions worth 1 mark each)
- ◆ Developing Software: Introduction (five questions worth 1 mark each)
- ◆ Professionalism and Ethics in Computing (five questions worth 1 mark each)

Section 2

This section is worth 15% of the total marks and consists of one written response integrated question covering two or more of the topics listed in Section 3. You must attempt this question.

Section 3

This section is worth 70% of the total marks and consists of written response questions. There are eight questions which cover individual Units and are each worth 10 marks. You should answer any seven of the eight 10 mark questions. This section covers:

- ◆ Computer Systems Fundamentals (two questions worth 10 marks each)
- ◆ Developing Software: Introduction (two questions worth 10 marks each)
- ◆ Professionalism and Ethics in Computing (two questions worth 10 marks each)
- ◆ Troubleshooting Computing Problems (two questions worth 10 marks each)

Should you answer all eight questions in this section, only seven of the eight questions will be credited to your total score.

There is no minimum score in any section.