

V1.1

The final draft of this document will be issued to centres in March 2009 for the examination. This document is being made available now so that centres may prepare their networks well in advance of the on-screen examination.



General Certificate of Education
Advanced Subsidiary Examination
May 20XX

COMPUTING

COMP1/TN

Unit 1 Problem Solving, Programming, Data Representation and
Practical Exercise

Instructions and Guidance for Centres on the conduct of COMP1, an on-screen examination

To be given immediately to the teacher(s) responsible for GCE Computing

Open upon receipt

This booklet contains important information for centres in advance of the examination.

The purpose of this booklet is to:

- give instruction in the preparation of the centre's server to be used in the examination
- provide support and guidance for teachers in their management of the examination for COMP1.

The COMP1 examination taken by candidates is on-screen. In addition, candidates must have the ability to print documents and produce screen prints of active windows. Teachers are therefore encouraged to read this document well in advance of the examination.

This document will also be made available on the AQA Website.

This document should be read in conjunction with the JCQ document, Instructions for Conducting Examinations (ICE), which is available on the JCQ website: http://www.jcq.org.uk/jcq_top_ten/

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COMP1 is an on-screen examination and candidates must have access to a computer and printer to complete it. See the summer timetable on the AQA Website for when the examination will be held.

1 The responsibilities of the Head of Centre

It is the responsibility of the Head of the Centre to ensure:

- that appropriate security systems are in place to prevent unauthorised access to examination materials, including candidates' work
- that AQA's requirements for the availability of the Preliminary Material files for the examination are met in advance of the examination
- proper conduct of the examination in accordance with these *Instructions and Guidance for Centres* and the *JCQ Instructions for Conducting Examinations*
- a sufficient provision of resources and appropriate system security, as detailed in this document
- that candidates are made aware of the requirements of the examination.

2 Security

The centre must be able to demonstrate to a JCQ Inspector, should he/she visit, that appropriate security systems are in place to prevent unauthorised access to the examination materials. These systems must ensure that:

- electronic examination materials are stored securely at all times including before, during, and after the examination. All wireless capabilities must be disabled or otherwise made secure e.g. by encryption
- Candidate Examination Password information is stored securely and given to candidates only at the start of the session for the examination. Only examination administrators and the candidate can have access to the candidate's password which gives the candidate access to the on-screen examination
- expertise to access, administer and support the examination is available.

3 Materials which centres can expect to receive

In March in the year of the examination centres will be issued with two CD-ROMs.

Disk 1 will contain:

- a PDF document called *Advice on using the COMP 1 Electronic Answer Document*. See also Section 15 of this document
- the *Electronic Answer Document* (EAD) in which candidates will type their answers to the question paper during the examination. **This will be provided as a Microsoft® Word (2003) document.**

Disk 2 will contain a data file, the instructions to candidates known as the **Preliminary Material and the skeleton programs for each programming language:**

- Confidential *Instructions to Candidates* in a sub- folder **PreliminaryMaterial**. The instructions will be provided in PDF format.
- Confidential sub-folders containing the *source code* and any *additional files* for each of the **Skeleton Programs**, one sub-folder per programming language. These will be provided as editable files in a format appropriate for the particular programming language.
- Confidential *data file* in a subfolder **DataFile**.

The electronic Skeleton Program will be available in the following languages:

C++
C#
Java
Pascal
PHP
Python
VB.NET
Visual Basic6

The **material** on Disk 2 will appear on the public AQA Website on 1 April.

4. Upon receipt of the two CD-ROMs

- 4.1 All documents on Disk 1 can be opened by centres on receipt. The EAD on Disk 1 can be issued immediately to candidates so that they can enter their personal details on the front cover and in the footers (see the EAD Advice document). A copy of their personal EAD can then be stored by the centre in each candidate's personal secure space on the centre's server. Centres are encouraged also to issue a further copy of the EAD to candidates at any time before the examination so that they may practice using it.
- 4.2 The **contents** of Disk 2 are confidential. They can be opened by the Computing Teacher upon receipt **but they must not be issued to candidates**

until 1 April. The contents of Disk 2 must be kept under secure conditions until that time.

- 4.3 The Skeleton Program code in each sub-folder included on Disk 2 has been developed using the programming environment for each programming language documented in the comments at the top of the program. AQA appreciate that your centre may well be using a different programming environment for your chosen language. Your centre therefore is at liberty to make minor changes to the Skeleton Program code in order that the code will successfully run within your chosen environment.

However, it is anticipated that such code changes will, typically, only relate to the provision of programming libraries for basic input and output.

If changes are made to the code provided by AQA you must:

- contact AQA well in advance of the examination to seek approval (XXX XXX XXXX)
- include one copy of the code - as made available to candidates for the examination – with the candidates' examination scripts following the examination.

5. On or after 1 April

- 5.1 On or after 1 April, centres must upload the **Preliminary Material** (the Instructions to Candidates, the **Data File** and the (amended) **Skeleton Program(s)** of their choice) onto the centre's computer network in good time before the examination. See Section 8 of these *Instructions and Guidance for Centres* for more information.

- 5.2 Centres must make two hard copies of their Preliminary Material for each candidate. This Preliminary Material **must be issued to candidates only on 1 April or thereafter.**

The first hard copy is for immediate use by the candidate. **Candidates must not take this first hard copy of the Preliminary Material into the examination room. Centres must ensure that candidates are aware, in advance of the examination, of this requirement. If candidates have any unauthorised material in an examination (whether or not they intended to use it) this may be considered as malpractice.**

Teachers can teach to the Preliminary Material before the examination.

The second hard copy of the COMP1 Preliminary Material is for use by the candidate in the examination. This second hard copy must be retained by the centre and issued only in the examination room.

5.3 In April centres will be sent hard copies of the question paper for each candidate for issue only at the start of the examination.

6. Timetabling

6.1 Centres must make arrangements for **each** candidate to be allowed to complete the examination in two hours.

6.2 Centres which are unable to accommodate all their candidates in the timetabled session of the examination will need to ensure that candidates awaiting examination are supervised under examination conditions from the published starting time of the examination until their test is completed.

6.3 Candidates awaiting their examination must not have access to any means of communication including mobile telephones, the Internet or computers. Anyone wishing to leave the supervised area must be escorted by a member of staff.

6.4 There will be one attendance register for the examination. This must be fully completed at the end of the final session (if more than one).

6.5 An accurate seating plan of candidates present at each session must be kept.

6.6 Candidates may sit the examination once only in any examination series.

7. Accommodation

7.1 Centres must ensure that:

- the accommodation is suitable for an examination room in accordance with JCQ ICE Section 5
- a sufficient number of workstations is available, including at least one replacement computer and printer, and a supply of easily replaced items (e.g. mouse).

7.2 A computer must be made available to each candidate on a 1:1 basis. In advance of the examination, each workstation **must** be tested to ensure full working order for the purpose of the examination.

7.3 Whilst the layout of the room cannot be specifically prescribed, centres should ensure that:

- each workstation in use by candidates is isolated by a minimum space of 1.25 metres (four feet) measured from the nearest outside edge of one screen to the next, unless monitors are positioned back to back or separated by dividers or

privacy screens. Where it is not possible to arrange the workstations with this space, it is recommended that only every second workstation is used

- the arrangement of workstations for on-screen tests and the position of the invigilator's desk should facilitate detection of any unauthorised activity by candidates, for example communication with others or use of unauthorised reference material.

7.4 Candidates must be given sufficient workspace to allow them unrestricted access to the computer and to carry out non-computer activities such as checking and collating printouts, and the use of additional permitted materials i.e. their question paper and their Preliminary Material.

7.5 The room should have sufficient lighting, heating and ventilation. The computer screens should be placed to avoid excessive reflection.

7.6 The following JCQ notices must be displayed in the examination room according to sections 5.7 and 5.8 of the ICE:

- A3 Warning to Candidates (Appendix 2 ICE)
- A3 Notice to Candidates (Appendix 3 ICE)
- No mobile phones (Appendix 4 ICE).

7.7 The centre number, session, start and finish times should be displayed prominently. A clock should also be visible to all candidates.

7.8 All display material must either be completely covered up or removed from the examination room.

7.9 A copy of the JCQ ICE document should be available for the invigilator in the examination room.

8. Preparation of the computer network

8.1 Centres must ensure that the software available to candidates will allow them to meet the requirements of the examination. The software required is:

- the appropriate programming language development system which your candidates are going to use in the examination
- word processor
- image editing software or screen capture software where this is not already provided by the computer's operating system.

- 8.2 Centres must set up on their network a separate user area for each candidate sitting the examination. Each candidate must be assigned an individual user name and password. These user areas must not be accessible to candidates at any time other than during the examination session. (Candidates will be advised at the start of the examination of the need to save regularly in a user-created directory structure that protects against accidental overwriting that would result in loss of work.)
- 8.3 Centres must not store their working files in a shared area. There should be an individual copy of the required Preliminary Material file and Electronic Answer Document file in each area before the examination begins.
- 8.4 Each user area should only have a copy of the files associated with the scheduled examination, and candidates should only use software packages appropriate to the examination.
- 8.5 Each user area must be allocated sufficient electronic storage space to allow candidates to save their EAD.
- 8.6 Candidates must not be able to save anything during the examination in a central location where anyone can access such material.
- 8.7 Centres should ensure that up-to-date virus protection measures are in place.
- 8.8 Candidates must not have access to any documents/files, data stored in shared areas on a network server, data stored on the hard drive or portable storage media, other than those required for the examination.
- 8.9 Candidates must not have access to e-mail or intranet/Internet during the examination. Instant messaging software must not be used.
- 8.10 No extra time can be allowed for slow machines or networks which run slowly. Centres must ensure the appropriate hardware and software is available to candidates and there are no problems with the computer facilities **before** the examination.

9. Immediately before candidates start the examination

- 9.1 The Invigilator must deliver an announcement in accordance with Appendix 1 of the JCQ ICE document, *A suggested wording for the invigilator's announcement at the beginning of an examination*.
- 9.2 After issuing the question paper and a new hard copy of the Preliminary Material to each candidate and immediately before the start of the examination, candidates must be instructed to:

- load the programming language software
- load the word processing software
- load the appropriate **Skeleton Program** file(s)
- load the EAD and add their:
 - Centre Number
 - Candidate Name
 - Candidate Number

on the front page of the document (if this has not been done in advance of the examination). Insert their Centre Number, Candidate Name and Candidate Number, e.g. 55556 Joseph Bloggs 1234 into the footer **on every page** of the EAD (if this has not been done in advance of the examination)

- save the EAD with the candidate's Candidate Number as the filename.

These instructions are vital in order to ensure that at the end of the examination the source of each printout is clear and that a candidate's file can be identified should there be a need for re-printing (see Section 13.3).

- 9.3 Candidates should be reminded at the start of the examination of the need to save their word processed copy of the EAD and the files developed within the programming software, regularly in a user-created directory structure that protects against accidental overwriting that would result in loss of work.

10. Conduct of the examination

- 10.1 Technical help must be available at the start and during the examination to deal with any technical difficulties which may arise such as help with hardware failures, inability to logon, inability to load files etc.
- 10.2 There must be one invigilator for every 15-20 candidates. Additional invigilators can be employed at the discretion of the centre to ensure all candidates are in view at all times.
- 10.3 At least one invigilator must be conversant with the software and system to be used by candidates in order to deal with technical difficulties that may arise. A GCE Computing teacher may perform the role of:

- an invigilator (provided they are not the sole invigilator in the examination room and provided that their need to observe candidates at all times is not compromised)
 - an invigilator who is also the source of ‘technical help’ if and when required
 - the ‘on call’ source of technical help.
- 10.4 Candidates may bring a pencil/pen and ruler with them into the examination. On request, candidates may be provided with pen and paper to do rough workings. These must be handed to the invigilator at the end and not removed from the examination room by the candidate.
- 10.5 Other than the question paper, candidates must not have access to any books or documents whilst sitting the examination. Candidates should only use or have access to permitted software i.e. that referred to in Section 8 above.
- 10.6 The examination must be taken under examination conditions and communication between candidates is not permitted at any time. Communication between candidates via computers is not permitted.
- 10.7 Candidates must not bring portable storage media (e.g. memory sticks, CDs etc) into the examination, although immediately before the start of the examination (as in Section 9), some form of portable storage media may be used by the centre for the provision of the required software to the candidate.
- 10.8 Candidates must not have access to pre-prepared templates or other files during the examination except
- the EAD,
 - the Preliminary Material,
 - the Skeleton Program and associated files,
 - the Data File,
 - the software referenced in 8.1.
- Software-specific wizards may be used.
- 10.9 Candidates may use paper-based dictionaries (English or bilingual only) during the examination. Technical dictionaries are **not** permitted.
- 10.10 Candidates must **not** use a calculator of any sort, including that on the computer.
- 10.11 Candidates are not allowed to refer to textbooks or centre-prepared manuals during the examination but may use software-specific help facilities. It is expected that the programming language software will include the normal help files as supplied with the original software.

- 10.12 If a candidate experiences technical difficulties, including printing, the centre may use its discretion to produce printouts already sent to the printers outside the timed 2 hour examination, and must note the difficulty on the candidate's output.
- 10.13 No extra time can be allowed for slow machines or networks which run slowly.
- 10.14 Candidates are not allowed to remove anything from the examination room. The invigilator must collect all extraneous candidate materials at the end of the examination (or each examination session, if more than one) and keep these in a secure place until the publication of results by AQA.

11. Labelling of printouts

Candidates must ensure their name, centre number and candidate number are on each page of each printout. It is the candidate's responsibility to ensure that these details are correct on each page. Handwritten details are acceptable for identification purposes only.

12. Printing

- 12.1 It is recommended that the ratio of candidates to printers is no more than 10:1.
- 12.2 Centres must ensure that the printers are set up to print on A4 paper.
- 12.3 There is no requirement to print in colour. No extra credit is given for work printed in colour.
- 12.4 Printers should be in the same room as the candidates. A **Print Monitor** (who should neither be an invigilator nor a candidate, but who could also be the source of technical help) must be assigned to collect and deliver printouts to the candidates. Candidates must **not** be allowed to collect printouts.
- 12.5 It is the responsibility of the **Print Monitor** to ensure the correct ownership of each printout.
- 12.6 Candidates must send their printouts to the printer during the timed 2 hour examination.
- 12.7 Do not be concerned if the AQA logo does not appear when the Electronic Answer Document is printed out.

13. At the end of the examination

- 13.1 At the end of the examination before papers are collected by the invigilator, **candidates are required to:**
- **collate their printouts into question number order**

- **attach these securely to the front cover of the EAD**

The means of securing these documents must be provided by the centre. It is *strongly recommended* that candidates secure these documents using a treasury tag.

- 13.2 When sending candidates' completed EADs to the AQA Examiner, one copy of the code - as made available to candidates for the examination – must also be sent.
- 13.3 Centres must remind candidates to ensure that their EAD is individually saved on the network and in their individual work areas. Centres must ensure that these EADs are secure from unauthorised access. Centres must safeguard this work and store it in a manner which will allow an individual's saved work to be easily retrieved if it is required for reprinting. After the examination each EADs belonging to all candidates must be copied on to a portable storage medium and kept securely by the Examinations Officer at least until the publication of results. The same portable storage medium may be used for all candidates' EADs.
- 13.4 All other examination material (for example, draft copies of candidates' work, rough work, additional printouts and question papers) must be collected by the invigilator at the end of each session and stored in a secure place until the publication of results by AQA.
- 13.5 Immediately after the end of the examination session, each candidate's access to their user area must be blocked. If any candidates are sitting the examination at a later session, centres must ensure that the user areas of those who have already sat the examination cannot be accessed. Different passwords must be used for each candidate.

14. Malpractice

This type of examination relies on the integrity of candidates, teachers and invigilators. If any candidates submit work which is not their own, or any form of malpractice occurs, or is thought to have occurred, it must be reported to AQA. The matter will be investigated by AQA and if it is found that the candidate has been involved in malpractice, the candidate may be disqualified from at least the subject concerned.

15. Emergencies

- 15.1 In the event of an emergency, the invigilator should take the following action:
- evacuate the examination room
 - centres should refer to any software specific instructions to safeguard the security of assessment content and responses (for example by locking an assessment room which has been evacuated without closing down software)

- ensure candidates are supervised as closely as possible whilst out of the examination room to ensure there is no discussion about the examination
- after the candidates' return, note the point and time at which the interruption occurred and the duration
- allow the candidates the full working time prescribed for the examination
- make a full report of the incident, and of the action taken, for submission to AQA.
- In the event of hardware, software and communication failures affecting individual workstations or the network, the centre must ensure candidates continue the assessment session at a different workstation or at a later time, without the loss of working time.

15.2 In the event of total failure meaning candidates are unable to sit the examination (or restart the examination at a later time), the Head of Centre must write to the Candidate Services department at their administering AQA Office with full details

15.3 In the event of a problem using the EAD or if your centre does not use Microsoft® Word, centres should ask candidates to type their answers into a blank document ensuring that the **front page prominently** carries the following information:

- GCE Computing, Comp 1 examination, Summer (year of examination)
- Centre Number
- Candidate Name
- Candidate Number
- The candidate's signature.

Each subsequent page must also carry the following personal information of the candidate in a footer (either typed in or written by hand):

- Centre Number
- Candidate Name
- Candidate Number

Each answer must be clearly numbered. All pages must be securely attached together.