GCE

Chief Examiner's Report
Digital Technology

Summer Series 2017

Foreword

This booklet outlines the performance of candidates in all aspects of CCEA's General Certificate of Education (GCE) in Digital Technology for this series.

CCEA hopes that the Chief Examiner's and/or Principal Moderator's report(s) will be viewed as a helpful and constructive medium to further support teachers and the learning process.

This booklet forms part of the suite of support materials for the specification. Further materials are available from the specification's microsite on our website at www.ccea.org.uk.

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GCE DIGITAL TECHNOLOGY

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Introduction

The GCE Digital Technology specification, as with all the revised GCE specifications, is more demanding than the specification it replaces, in this case the GCE in Information and Communication Technology. This is reflected in the major shift in assessment objectives, with a reduced weighting of Assessment Objective 1 and an increased weighting of Assessment Objective 2. Furthermore, there is now a substantial weighting of Assessment Objective 3, a level of assessment to which AS candidates were not exposed in the past. The GCE Digital Technology specification is more demanding in another important respect - the content has been comprehensively revised and includes learning objectives and content of a more technical nature.

There was evidence that a small number of centres had properly prepared their candidates for the new specification, but the majority of candidates responded to the two AS examination papers as if nothing had changed from the GCE ICT specification. The result was that the overall level of response fell very far short of the required standard even though appropriate allowance was made for the introduction of a new specification.

The performance of candidates on individual questions on the two papers is described below but centres are urged to read previous Chief Examiner's Reports for GCE ICT which highlighted two ongoing issues which are even more relevant for GCE DT. Firstly, candidates must address the exact question being asked. Secondly, candidates must make appropriate use of Digital Technology terminology in their responses.

Assessment Unit AS 1 Approaches to System Development

Q1 As stated in the introduction, most candidates were unprepared for the level and type of assessment, including quality of written communication, intended by Part (a). The overall level of response was very poor, with many candidates unable to articulate relevant points about the agile approach in particular. The majority of candidates struggled to explain a constraint or a risk without repeating the two words in Part (b). The overall level of response to Parts (c) and (d) was very good and many excellent answers were noted. Similarly, most candidates were properly familiar with technical documentation in Part (e) and many candidates gained maximum or near maximum marks. Version management was poorly understood by the majority of candidates. A common weakness among those few candidates who made a constructive attempt at answering this question was a failure to identify that versions management involves versions of software and/or documentation.

Q2 Most candidates were familiar with prototyping in Part (a) and many were properly familiar with storyboarding. However, the majority of responses described these two approaches generally without any reference to their use in the design of the user interface as was required by the question. Most candidates were familiar with a test plan in Part (b) and some excellent responses were noted. A common mistake, however, was to identify the actual result of the test which is not part of the test plan. The overall level of response to Part (c)(i) was very high - many candidates produced an excellent explanation of the need for a disaster recovery plan. Part (c)(ii) proved to be more discriminating than intended. Some candidates stated clearly the difference

between the two methods of backing up data, but many could not distinguish between them as was required.

Q3 The term 'software crisis' was familiar to most candidates in Part (a) and many candidates identified three reasons as required. Quite a common mistake, however, was to include that software systems were delivered over budget when this was referenced in the question itself. The overall poor performance in QWC questions has already been referred to, and this was the case in Part (b). At a minimum, candidates were expected to provide some detail about both fact finding methods but only a few candidates did so. There were some high quality context data flow diagrams produced in Part (c)(i) and many candidates gained maximum or near maximum marks. At the other extreme, some candidates were not familiar with DFDs, and others failed to use the standard symbols required. The overall level of response to Part (c)(ii) was disappointing with only a few candidates describing the process to the standard required.

Q4 Most candidates were properly familiar with the direct changeover method in Part (a)(i) and could state an advantage and disadvantage of the method. Most candidates struggled with the evaluation required in Part (a)(ii) and failed to refer to the nature of the organisation as was described in the question. The need for data conversion was poorly understood by most candidates in Part (b), and only a very small number of candidates used the appropriate DT terminology. The overall level of response about software maintenance methods in Parts (c)(i) and (c)(ii) was very high.

Q5 While some candidates were not at all familiar with an IDE in Part (a), most candidates were and they could identify at least two out of the four features required. A common weakness was to refer to translation facilities which were referenced in the question. The overall level of response to Part (b) was disappointing resulting in very few clear explanations of why a program might need to be translated. The overall level of response to Part (c) was also very disappointing with very few candidates managing to use appropriate DT terminology. An explanation, not an example, was required, and at this level candidates were expected to refer to a condition being true, not a condition being met. The overall level of response to Part (d) which assessed QWC was disappointing. Many candidates described, or attempted to describe, what the algorithm did without making any reference to its effectiveness. Only a few candidates were familiar with the object-oriented concepts assessed in Part (e) but those candidates who were familiar with concepts produced excellent responses about inheritance.

Assessment Unit AS 2 Fundamentals of Digital Technology

Q1 Most candidates were familiar with the storage capacity units in Part (a)(i). The overall level of response to Part (a)(ii) was also very high, with many candidates showing how they obtained their answer, as was required. In Part (b)(i) candidates were required to describe the two's complement method from a DT perspective and many excellent responses were noted. The overall level of response in Part (a)(iii) was also very high, with many candidates showing how they obtained their answer, as was required. Most candidates were familiar with ASCII and Unicode in Part (c) but many struggled to compare the two methods as was required.

Q2 In Part (a), candidates were required to describe the two methods of data validation, not provide examples. In general, many candidates struggled to avoid merely repeating the names of the methods. The overall level of response to Part (b) was very high. Many candidates correctly identified the postcode field in Part (c) but their description was about user selection, not the use of a lookup table. The overall level of response to Part (d) was very high. Most candidates were familiar with data and information in Part (e). Batch processing was familiar to the majority of candidates in Part (f)(i) and some excellent responses were noted. Quite a common mistake, however, was for the candidate to refer to batch processing in its most general sense, and not to batch processing as a distinctive method of processing, rather than of manufacture. Many candidates were unclear about the difference between hash totals and control totals in Part (f)(ii) and this weakness was compounded by an inability to properly compare, rather than describe, the two totals.

Q3 The overall level of response to Part (a) was very uneven. Some excellent responses were noted but many candidates struggled to describe the main features of a multi-tasking operating system using the appropriate DT terminology. The overall level of response to Part (b) was disappointing. Only a few candidates were familiar with the two utilities to the appropriate degree. Most candidates were familiar with generic software in Part (c) but many struggled to explain clearly this type of software. Centres are reminded that candidates, in their examples, should avoid using proprietary names. The overall level of response to Part (d) was good, even though the question was assessing QWC. This was probably because this was an issue addressed in the previous ICT specification.

Q4 Only a small number of candidates properly understood the program counter in Part (a)(i). Very few responses were at the appropriate hardware level. The overall level of response to Part (a)(ii) was of a much higher standard. However, a significant number of candidates did not understand the difference between internal and secondary storage. The response to Part (a)(iii) was also of a higher standard. In general, candidates were familiar with the two types of user interface in Part (b) but most candidates struggled to evaluate the two interfaces from the required perspective. Most candidates were familiar with data compression in Part (c) and could identify two advantages, although the responses frequently lacked detail.

Q5 Most candidates could explain the difference between an intranet and the Internet in Part (a). Only a small number of candidates could describe the role of the W3C as required in Part (b). Although some excellent responses were noted in Part (c), many candidates were not properly familiar with HTML. Many of the responses to Part (c)(i) had the appearance of a guess, and many candidates could not produce the required HTML code in Part (c)(ii). Most candidates were familiar with the broad concept of data encryption in Part (d)(i). However, most candidates were not properly familiar with the use of public and private keys, and the difference between them, in Part(d(ii).

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