OCR
RECOGNISING ACHIEVEMENT

GCE

Computing

Advanced GCE **A2 7820**

Advanced Subsidiary GCE **AS 3820**

Report on the Units

January 2008

3820/7820/MS/R/08J

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This report on the Examination provides information on the performance of candidates which it is hoped will be useful to teachers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding of the syllabus content, of the operation of the scheme of assessment and of the application of assessment criteria.

Reports should be read in conjunction with the published question papers and mark schemes for the Examination.

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REPORT ON THE UNITS

2506 Introductory Computer Systems

General comments

The work has been of the expected standard and all questions, with the exception of question 10 a (ii) elicited the full range of responses in the mark scheme and the full range of marks from 0 to maximum.

There was no evidence of candidates not having sufficient time to complete the paper and there was no evidence of any barriers to language being used in questions leading to misunderstandings or common misconceptions with the concepts being tested.

Question 1
Part (a) was surprisingly poorly answered. This was intended as the simple starter question. However, this question caused problems and it became a discriminator. There was evidence to suggest that many candidates had not been taught this concept. Part b was better answered although considered to be a harder question.

Question 2
The candidate responses were well stated and largely accurate. There were some errors made, eg, inventing a word (the most common being the C in OCR standing for Card instead of Character), but most candidates scored well here.

Question 3
(a) Too many candidates were making errors for the data types. 'Character' is a data type which represents a single character and so cannot be used as a synonym for 'string', while a whole number should be labelled as an integer. Telephone numbers in this country start with a zero and consequently are not integers.
(b) The responses tended to be centre based and centres are urged to consult the published mark scheme for a list of the expected responses.
(c) Well answered.

Question 4
There was evidence of a lack of examination technique for many candidates. Each of these pieces of software was given two mark points and many candidates only gave one point about each.

Question 5
(a) Well answered.
(b) Well answered, but, once again, not enough care taken to ensure that 4 points had been given so that the candidate could be credited with all four marks in (ii).

Question 6
Again, very centre based. The specification does state that candidates should be able to describe the transfer of data from primary memory to secondary storage. There were more blank spaces for this question than for any other on the paper. Most of those who did answer this question scored very well.

Question 7
This question provided a good discriminator at the lower end of the mark boundaries. Candidates who set about their answers in a methodical way, tended to score better than those who did not.

Question 8

(a) Some excellent answers, but too many were either unable to provide a suitable response or they missed out large amounts of evidence leading to an inability to award the marks.

(b) Again, a good discriminator at the top end. There are few candidates who can adequately use a FOR loop, although most picked up the two marks for the parts which were stated in the original question.

Question 9

Most candidates earned a mark for the first part of the question. If a candidate knew what a function was they tended to pick up the rest of the marks while those that did not failed to score any more.

Question 10

(a) (i) was well answered but (ii) was not. The definition of an array includes the phrase '...a set of data items of the same type...' hence the question. We tend to think of an array being able to have as many different data types as there are columns in the diagram that we draw to represent it, but it cannot. The only way of storing multiple types of data in the same array is to create a complex data type and to then store these as records in a single dimensioned array. The individual items of data can then be reconstructed when the records are read from the array.

(b) This part of the question was intended to be accessible mainly to more able candidates and so it proved, particularly (ii) about the flag.

2508 Computer Systems Development and Practical Applications

General Comments

Generally the performance of the candidates is improving in this module. Performance varied from centre to centre, with some excellent work produced by the better prepared candidates. The paper seemed to differentiate well across the range of candidates.

The layout of this question paper continues to help and more Candidates are paying attention to the mark allocation. Most sections of the specification are well understood by centres but section 5.3.5 of the specification continues to cause concern as evidenced by the poor performance in question 1(d) and question 4(b). Candidates were scoring low marks in questions relating to the content of this section.

There was evidence to suggest that the majority of centres are using previous papers, mark schemes and examination reports, in preparing candidates for this examination.

All candidates seemed to have ample time to complete this examination. It was pleasing to see fewer blank spaces in answer booklets.

Comments on Individual Questions

Question 1
Part (a) was well answered, with the majority of candidates able to state two reasons for replacing a current information system. In Part(b) the majority of candidates were able to state at least four stages of the system life cycle. Some candidates lost marks as the names of the stages used were often vague such as “development” or “specification”. These words without a context have no real meaning.

Part (c) was not well answered by many candidates. Too often Candidates focussed on why the stage is important such as “.detailed testing the system will help prevent maintenance..” rather than describing the stage as the question asked. It was pleasing to see good answers to part(d) with many Candidates focussing on the involvement of the user throughout their answer.
Part (e) was poorly answered by the majority of Candidates and proved to be a discriminating question. Candidates need to learn the terminology and features associated with expert systems. It is an integral part of this course.

Question 2
Candidates scored well in this question with the majority achieving more than half mark. Part (a) appeared to be more accessible than part (b). In part (a) most Candidates were able to state “Direct changeover” and go on to describe this method of changeover. In part (b) many Candidates got confused between “pilot” and “phased” as methods of changeover. Candidates were given credit for naming the wrong method but describing the correct method. Some of the weaker Candidates did not consider the scenario of the question stem and suggested “parallel” as there changeover method.

Question 3
It was pleasing to see many candidates scoring 5 or more marks in this question .Part (a) was very well answered with clear and concise advantages and disadvantages in each case. Centres have taken advice from previous reports that suggest single word answers such as “faster”, “cheaper”, “reliable” etc. are not meaningful without a context. In part (b), unlike previous years candidates took advice from the instructions on the paper: “No marks will be awarded for using brand names of software packages.” It was pleasing to see Candidates using generic software names such as “database”. Although a number of candidates were able to suggest a spreadsheet package for “maintaining stock records”, their reason for their choice was too vague such as “..it can do calculations..”.

Question 4

Part (a) (i) proved to be a discriminating question with only the better Candidates scoring full marks. Some Candidates clearly demonstrated each stage of the calculation correctly rather than explain how the check digit is calculated in words and received full credit. Many of the weak Candidates knew that seven was the check digit but were unable to explain how it was calculated. Part (a) (ii) proved to be accessible to the majority of candidates, giving the appropriate name and a clear description.

It was disappointing to see very poor answers to part (b). The majority of Candidates demonstrated a lack of knowledge of MIS. Candidates must stress that each level assists with decision making in the organisation, in this case the local authority and their libraries. Some Candidates used examples that were not relevant to the question, hence gaining no credit. Part(c) was well answered by all candidates. Answers were often clearly stated with an appropriate method of reducing the risk.

Question 5
This proved to be another discriminating question. Most candidates were able to demonstrate their knowledge of scanners and score well in part(i), with only the better Candidates scoring any marks in part(ii) and part(iii). The weaker candidates in part(ii) were only able to reword the question and received no credit, such as “capturing a video” for video capture card. Whilst there was no evidence of Compression/Decompression techniques some candidates were able to demonstrate their knowledge of Analogue to digital techniques. In part(ii) there was little evidence of understanding of light sensors capturing data and idea of varying colours and resolution of images.

Question 6
It was pleasing to see many candidates scoring high marks in part (b) and part(c). In part (a) many candidates did not focus on the main part of the question “.. factors that should be considered when designing a suitable human computer interface..” Many candidates referred to the features of an interface that they had chosen such as the features of a command driven or GUI interface and explained in detail the reason why they were choosing the interface. Those candidates who scored in this part of the question were able to refer to the idea of “user friendly” or “making use of human memory” in their answers.

2509 Systems Software Mechanisms

General points

It was pleasing to see that a considerable number of candidates had obviously revised thoroughly for the examination and so scored well in at least some of the questions.

Unfortunately, many candidates did not read the questions carefully. They seemed to pick out only a few key words before starting to write. For example, in question 2(c) the request to "Explain how errors are handled…" was often ignored, with candidates writing only a comparison between compilers and interpreters. Similarly, in question 5 (b) the question asked them to "Explain why procedures may be used…" but many candidates interpreted this as "Write down anything you know about procedures". Perhaps more careful practice in answering examination questions would benefit such candidates.

As reported after the June 2007 examination, correct use of technical terms is essential.

Comments on individual questions:

Question 1
While most candidates knew something about priorities and interrupts, very few candidates showed an understanding of the purpose of priorities as a scheduling strategy. The most common incorrect answer was that program P would be completed and then program Q would be run. Many candidates seemed to concentrate on sources of interrupts other than those related to the two programs, introducing additional layers of difficulty which were not required.

Question 2
(a)(b)Reasonable marks were gained here by the majority, despite some lack of detail in (b). Some candidates included stages of lexical analysis in their answers.
(c) Many candidates described how an interpreter differs from a compiler, but did not give sufficient information about how errors are handled.

Question 3
(a) Most gained at least 2 of the 3 marks available.
(b) Parallel processing was described poorly by some, and weaker candidates confused it with pipelining. Attempts were made to list a number of advantages and disadvantages instead of describing one of each in more detail.

Question 4
(a) Many gained full marks for the binary tree, though some made careless mistakes. A few attempted to use a different data structure.
(b) It was pleasing to see that many candidates knew how to do an insertion sort. A few missed out the first line where no change was made. Many wrote confusing labels on the grid, such as "Insert 3", "Insert 4" etc. Perhaps this suggested that they could complete the routine but did not properly understand what they were doing as they were unable to describe each step taken.

Question 5

(a) The majority of candidates were unable to answer this. Many confused stepwise refinement with stepping through a program to debug it.

(b) A number described procedures without explaining why they are used. The level of detail seemed Centre-based.

(c) Again, few candidates gained many marks here. The most common mistakes were to describe a stack data structure, or to explain how a stack is used when an interrupt is to be serviced.

Question 6

(a) Though a few completely correct answers were given, it seems that many candidates are still unfamiliar with DDL and DML.

(b) Many candidates were able to describe issues relating to data duplication and data integrity, though little detail was given by some. A sizeable minority simply described a relational database without considering advantages over flat files.

(c) Most of this was answered quite well. However, many candidates did not know what a secondary key was and either guessed or confused a secondary key with a composite key.

Question 7

(a) This was answered quite well. In (ii), many candidates ignored the word “original” even though it was emboldened in the question. Some failed to appreciate that two separate pointers remain even when they point to the same data item.

(b) Most candidates were able to follow the pattern in the algorithm given to answer part (ii) to gain most of the marks, but showed a significant lack of understanding by not being able to identify or output the item to be removed correctly. The most common mistakes were to change the stack pointer before obtaining the data, so giving incorrect output, or to write the assignment statement in the wrong order.

(c) The main problem seemed to be careless use of English, with numerous candidates writing “a static data structure does not change”. A few took this mistake a step further and wrote specifically that the data cannot change.

Question 8

(a) This was generally answered well, although candidates tended to answer in prose that suggested that they were using common sense to arrive at an answer, rather than indicating clearly that they were applying the rules in the code.

(b) Many candidates were unable to state a goal or give an example of instantiation. These are basic concepts of declarative programming which candidates should understand. In part (iii) candidates were able to gain marks by explaining how they arrived at an answer, but very few actually showed an understanding of the correct process. Typically, candidates applied the rules themselves to the facts, often showing no understanding of the use of instantiation and backtracking in the process. Many of the weaker candidates gave long descriptions but failed to apply the rules accurately.

2510 Computing Project

There was a very small entry for this unit for this session and only a small number of issues were raised by the work submitted. It is also worth pointing out previous advice offered during the training sessions run by OCR.

The best work comes from candidates who have worked with a genuine end user who can advise on and discuss the requirements for the project area. Areas where the moderators tend to differ with the Centre marking are:

In the investigation and analysis section there should be real and convincing evidence of third party involvement. Alternative solutions should be presented in a report to the end user so that they can make an informed decision; too frequently these comparisons are not realistic and compare software which is clearly not suited to the task. Too frequently hardware considerations are a mere afterthought and not based on the requirements of the system being investigated.

Implementation is seen as simply part of the development process with little evidence to show how the developed solution is to be installed into the target environment. Candidates need to use the end user here to develop a sensible and realistic strategy, develop suitable training and strategies for changeover. Candidates should avoid simply copying down the text book descriptions of methods of changeover.

In this session and in previous sessions technical guides have raised issues. While the moderator accepts that this need not be a stand-alone document and evidence can be taken from throughout the project, centres cannot expect the moderator to trawl through the project report to find this evidence. If evidence from other sections of the report is to be credited then this must be identified clearly through annotation or through marking notes. Too frequently technical guides are simply a collection of vaguely relevant items and centres might do well to point out to candidates why these guides are required. If candidates think in terms of corrective, perfective and adaptive maintenance of the system they might appreciate more clearly what is and what is not relevant. Too frequently un-annotated system generated code forms a significant portion of a technical guide. If the candidate has not written the code, then it is irrelevant and should not be included, if the candidate has written the code then there should be evidence to show the development and full annotation.

Candidates should think in terms of writing the report for the moderator identifying all the evidence to match the marking criteria in a clear and unambiguous manner.

2511 Integrated Information Systems

General comments

As usual at this time of the year, there were few candidates. However, more of them appeared to have made an effort to learn the contents of the specification. Again, though, there were very few candidates who showed a good understanding of this subject at this level.

Candidates need reminding that this is a synoptic paper and questions may be on any part of the specification. There is a need for thorough revision of the previous Modules.

Also, there were a number of scripts that were difficult to read. Examiners are obliged to make every effort to read all candidates' work, but there were some candidates who may have lost marks because the examiner could not understand what had been written.

Question 1

Most candidates gained 6 marks but a few were penalised for using brand names.

Question 2

(a) Most candidates gained a mark for a description of special purpose software but few could give a satisfactory description of generic application software.

(b) Candidates still cannot explain the inputs, processing and outputs of a simulation. Nor do they understand the limitations of simulation. This area of the specification needs a lot more work.

Question 3

(a) No candidate could give a satisfactory explanation of how data are accessed in an indexed sequential file. A few candidates scored 1 mark for knowing that an index is used. Only one candidate knew how to access data in a random access file and that candidate only gained 2 marks.

(b) Very well answered.

(c) Very well answered.

(d) Nearly all candidates gained 2 marks and a few gained full marks.

(e) Very well answered.

Question 4

(a) Both parts of this question were well answered.

(b) Nearly all candidates knew the purpose of a firewall but not how it maintains the confidentiality of data. Encryption was quite well understood but candidates did not mention public and private keys. Authentication was not understood with most candidates thinking it involved passwords.

(c) The ideas of sharing data, software and hardware were well understood.

Question 5

(a) Well answered.

(b) HTML appeared to be well understood by nearly all the candidates. However, the last part of the question was not read very carefully. It asks how the link is displayed. The answer is OCR is underlined or in a different colour (or both).

Question 6

(a) Very few candidates could answer this standard question satisfactorily.

(b) On the whole this was well answered. However, many candidates still confuse pilot and phased changeovers.

(c) Few candidates gained any marks here. Candidates do not understand that the more effort that is put into earlier stages of the system life cycle the less need there will be for maintenance. Candidates should read the answer in the Mark Scheme to understand this topic.

Grade Thresholds

Advanced GCE Computing (3820/7820)
January 2008 Examination Series

Unit Threshold Marks

Unit		Maximum Mark	A	B	C	D	E	U
2506	Raw	90	67	59	52	45	38	0
	UMS	90	72	62	54	45	36	0
2507	Raw	120						
	UMS	120						
2508	Raw	90	62	56	50	44	38	0
	UMS	90	72	62	54	45	36	0
2509	Raw	90	71	64	57	50	44	0
	UMS	90	72	62	54	45	36	0
2510	Raw	120	98	87	76	65	54	0
	UMS	120	96	84	72	60	48	0
2511	Raw	90	66	59	52	45	39	0
	UMS	90	72	62	54	45	36	0

Specification Aggregation Results

Overall threshold marks in UMS (ie after conversion of raw marks to uniform marks)

	Maximum Mark	A	B	C	D	E	U
3820	300	240	210	180	150	120	0
7820	600	480	420	360	300	240	0

The cumulative percentage of candidates awarded each grade was as follows:

	A	B	C	D	E	U	Total Number of Candidates
3820	4.9	26.8	56.1	82.9	97.6	100	41
7820	0	0	80	80	100	100	5

46 candidates aggregated this series

For a description of how UMS marks are calculated see: http://www.ocr.org.uk/learners/ums_results.html

Statistics are correct at the time of publication.

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