

BCS Higher Education Qualification

Certificate

April 2022

Computer and Network Technologies

Examiners' Report

General comments

We would recommend the centres to provide more insight to candidates and encourage them to attempt previous exam papers to provide them with formative feedback and an understanding of how to attempt the questions.

Look at how some topics are taught especially network related and ensure there is more understanding of the topics including the OSI model.

Look at ensuring the learners are able to read the questions carefully and have been given examination techniques so that they answer related to the context of the questions.

Question number: A1

The first question was about types of malware and their characteristics. Most of the students answered this question correctly but were unable to provide 'examples' which carried one mark each in the marking scheme.

This question had 3 parts, majority were able to answer the part a correctly, part b partially and part c with lower scores.

Part a) For this part, candidates were required to explain and distinguish, with an example, four types of malicious software (malware). In general, most attempts gave a good account, although some answers indicated a blurring of the distinction between the types. Many answers failed to provide a correct example, subsequently losing marks.

Part b) Required a description of the effects malware has on a computer. This part was well answered by most candidates.

Part c) This part of the question is split into three sub sections relating to operational ability, revenue loss and reputation. The question required candidates to identify the trends in malware and security that are having highest impact and concentration on these business factors. Almost all candidates were able to give a very good account of the type of damage that occurs in each sub section but failed to answer the question which was to categorise the most likely trend, such as ransomware as a means of revenue loss. Very few candidates gained any marks for this part.

Question number: A2

This question had 4 parts. Most of the candidates who attempted this question answered the part a in a satisfactory manner. Many confused RAM with HDD and scored low in this part. Part b and c were answered mostly correctly. Most of the candidates couldn't answer why data fragmentation may occur.

Part a) Many candidates were able to distinguish between the various forms of memory. However, some candidates confused physical memory as being all memory (HDD, memory stick) and not RAM. Many did not acknowledge Cache as part of physical memory.

Part b) This part was answered well by most.

Part c) In this part many candidates confused magnetic disk with magnetic tape drive and gave quite long explanations about magnetic fields and screening, gaining no marks for the question.

Part d) This question was poorly answered by most. Many candidates could give a good explanation of why fragmentation can occur but could not distinguish internal from external fragmentation.

Question number: A3

This question (which was the least popular choice) had 2 sections. Only a handful of students attempted this question and generally answered it incorrectly. The pass rate is only 30% for this question.

Part a) This question relates to the five-state process model. The question required candidates to list and describe the five main states that a computer process can live in. Many candidates could list the states, however many found difficulty in describing the characteristics of the states.

Part b) asked for a discussion on the challenges of programming for a multi core multi-threaded system. Almost all candidates gave a good account of the architecture and intricates of multi core systems and multi – threaded processes but failed to address the question which was to consider the challenges presented for programming. Many candidates subsequently gained few if any marks for this part.

Question number: A4

This question had 3 parts.

Part a) For this part most candidates gave good answers. Many candidates did describe devices for input (keyboard, mouse etc.) and not the functions. Those answers gained no mark. The CPU component was well described by most. The output components were described as devices such as display, printer etc.' These answers gained no mark. Storage was generally confused by candidates between devices and functional units. Some of the candidates did not understand what was being asked and tried to attempt it with their own understanding, which was not correct in most cases.

Part b) of the question was answered comparatively in a better way where candidates were able to describe a computer server and file server but not necessarily an application for each.

Part c) This question required the description and comparison of the two operating system modes of a computer. Most answers indicated an understanding of kernel v user mode. Very few candidates acknowledged the hardware node part.

Question number: B5

The OSI model overall was answered and in order but some parts of it lacked detail. The main issues came from the understanding of the Data link layer (and its use of frames) along with the Transport layer (and its used of TCP/UDP).

Many students knew what OSI was (although some confused it with an IEEE standard) however the depth of knowledge of what went in each layer was poor other than to say this layer feeds into the layer above etc

Question number: B6

Most students may have misunderstood the question. Many stated 1 difference between 2 printer types and moved on to part B of the question. However there was 4 more marks available.

Of those who did answer more than this, they typically did well. For further success, the differences of the 2 types of printer need to be stated. As these types are effectively the opposite of each other, which each correct answer would have effectively gained 2 marks (as the opposite statement was likely true for describing the other printer)

Whilst some students answers offer a basic difference between a standalone and a networked printer, they couldn't really elaborate on the subtle differences to get the full marks from the first part of the question. Often descriptions started to drift into other networking and OS related features

The second part was even worse, detailing the advantages and disadvantages of a laser printer compared to dot matrix, inkjet etc and those few who actually read the question, only a few actually managed to produce any answer featuring drum, electrically charged. Many students kept referring to ink rather than toner.

Needs to be some investigation what students are being taught as there seems to be a lot of very archaic terminology and reference to outdated technology.

Question number: B7

There was much confusion as to where the location of cache on a motherboard and if RAM/Cache was volatile or not. SSDs were named as a solid state drive but did not describe its unique functions say compared to a standard HDD, such as its faster or has no moving parts or Nand flash etc.

Question number: B8

Students overall did well in this question. Most could convert an IP address (binary) into decimal.

Most had issues doing it in reverse, which was odd as it's the same process, just reversed. (though there are other ways to work it out). Network fundamentals using and creating IPv4 addresses would have helped here.

Question number: B9

Not many students attempted this question. Many had issues understanding what home WiFi can do compared to a wired setup. Some believed WiFi and 4g/5g were the same thing, which is incorrect.

Broadband was also misunderstood for 4g/5g but should have been ADSL/Fibre related with what they do well and not so well.

Question number: B10

This was the worst performing question. (pass wise). Most understood what bandwidth/latency was and gained a mark for it. However there were 3 marks extra for each one as no examples were typically given to gain the rest of the marks. Collision as a whole was not understood in networking terms. Success could be gained with some understanding that collision is mostly solved by todays networking standards and what a collision domain was.

Question number: B11

This was the best performing question (pass wise). Students had great success mentioning prevention methods to cyber attacks. Some had issues naming the individual (TYPES) though.

Question number: B12

Most could tell what a Quad core processor was and an example, just not quite what it did as a hardware item. Screen resolution had some confusion as some talked about frame rate or brightness instead of the resolution or size examples. Hard drive capacity was overall understood well.