

**BCS Higher Education Qualification**

**Certificate in IT**

**October 2023**

**EXAMINERS' REPORT TEMPLATE**

**Computer & Network Technology**

**Questions Report:**

<b>A1</b>	
	<p>This was a popular question and most candidates answered it well. Most drawings were good and the concepts were reasonable. Some diagrams were mixed between star and mesh topologies but overall explanation showed good understanding of various topologies.</p>
<b>A2</b>	
	<p>This was a lengthy question with 5 parts, almost every part requiring comparison or evaluation of a concept. Most candidates answered part a) correctly but couldn't justify why a supercomputer or mainframe could be used for a particular type of organisation. Most candidates correctly identified the differences between desktop and laptop computers. The last part about embedded computers showed a mixed understanding of what it is and where it may be used. Some candidates answered it correctly.</p> <p>Students often struggled with concepts on parts a), b) and c).</p> <p>Part d) was answered to a high standard.</p> <p>Part e) students tended to focus on examples rather the purpose of the question.</p>
<b>A3</b>	
	<p>This question had 3 parts, students struggled with the core concepts of part a) and gave generic answers about the roles of an operating system. Some answers showed little understanding of this topic.</p> <p>Part b) was well answered but full marks issued was rare.</p> <p>Candidates struggled with part c) often making small errors which reduced marks.</p>
<b>A4</b>	
	<p>This was a popular question but many candidates struggled and missed zeros off section a), effectively halving the marks available.</p> <p>Part b) was poorly answered with close but incorrect answers.</p> <p>In Part c) Decimal conversion was a common issue between candidates, however other conversions tended to score zero or 100% marks.</p> <p>The marks remained within a medium range. Only a handful would've received higher than 20 marks.</p>
<b>B5</b>	

	<p>Popular question amongst candidates. A lot of candidates scored high marks by publishing the full logic table per gate but didn't always follow the incremental changes and subsequently failed to gain any of the remaining 3 marks per logic gate.</p> <p>Many candidates only answered the first part giving the entry for 01 inputs and hence only scored the 1 mark.</p>
<b>B6</b>	
	<p>a) Most candidates were able to describe man-in-the-middle attacks. However, some answers failed to explicitly state that the interception was data in transit.</p> <p>b) The question on network scanning was interpreted by many as requiring an explanation of standard network scanning and did not answer in terms of security- where the scanning is taking place by an intruder rather than a network administrator or engineer. Answers which mentioned the probing nature and examination of sockets gained marks. However, most candidates failed to gain full marks by extending into the reasons a hacker would use the technique.</p> <p>c) This question on the impact of cloud services to an employee of a business was interpreted by most candidates as a question on the benefits to the business per se and did not directly address the impact of the employees. Candidates gained limited marks on this question with a number listing impacts without details of their implications.</p>
<b>B7</b>	
	<p>This question was a popular question among candidates.</p> <p>Part a) Some candidates had problems identifying 3 types of printers, many could do Laser/LaserJet or inkjet but would often add Deskjet which is effectively same thing as inkjet (but more of a brand name). Some managed to suggest 3d printers or thermal printers as different types. A number of candidates listed types of printers without explaining how they operate which limited marks awarded.</p> <p>Part b) This part required a recommendation of printer type for different applications. Most candidates were able to give adequate account but a lot of got the recommendations round the wrong way between the 3 scenarios swapping laser and inkjet for the wrong scenarios. Several candidates incorrectly recommended a 3D printer as most suited to high volume multipurpose printing.</p>
<b>B8</b>	
	<p>This question which concerned operating systems was particularly difficult for many candidates.</p> <p>Part a) Had a wide variation of answers to the question defining virtual memory, with a lot of candidates getting 1-2 marks but not much more as they didn't make the distinction that secondary storage like HDD/SDD is used a page files etc. Very few answers were able to show a good definition of virtual memory with many answers suggesting it was 'imaginary'. A number of answers also incorrectly suggested it was cloud-based memory.</p> <p>Part b) Candidates had no problem identifying the purpose of virtual memory to alleviate low RAM availability.</p>

	<p>Part c) Few candidates completed this part of the question with almost all being unable to cite the Microsoft windows default memory as 1.5 times physical memory.</p> <p>d) This question asked for the effects of reducing virtual memory to 0. Very few answers suggested that on a system with enough RAM and a slow disk system. The reduction to 0 would improve performance by eliminating the need to swap on a slow disk system.</p> <p>Quite a Few answers implied that performance usually increases when virtual memory is decreased to 0 gaining 1-2 marks but they did not give the full explanation or story.</p> <p>Few candidates identified relevant scenarios where virtual memory would have a negative impact on system performance with non-relevant examples provided.</p>
<b>B9</b>	
	<p>This question on networks was by far the least popular choice amongst candidates.</p> <p>Part a) Few answers demonstrated the full expansion of the three network abbreviations.</p> <p>Part b) Some Candidates showed a good appreciation of cases where open or no security would be acceptable and were able to suggest cafes/ hotels and public access places. Some Candidates identified 'guest of public wifi' networks but didn't really offer much if any explanation about why it may be a security issue.</p> <p>Part c) This question on wifi frequencies for 802.11 based transmissions was problematic for most. some candidates identified different frequencies and those that did answer often went for 802.11 a/bg etc. Very few answers indicated the 2.4Ghz and 5Ghz standard frequencies and few were able to show an advantage or disadvantage for both such as 5Ghz having higher data rates and more channels which comes with the disadvantage of shorter range and reduced ability to penetrate materials such as walls etc'.</p>
<b>B10</b>	
	<p>This question on processor architecture was not a particularly popular choice amongst candidates.</p> <p>Part a) This part dealt with the advantage of SSD over hard disk technology. This was generally well answered by most. Many did not mention a benefit of SSD being the reduction in wait latency compared to an HDD. Most candidates answered about no moving parts (reliability issues) and some mentioned delay in read/write etc. This part of the question was generally well answered by candidates with most identifying the differences between physical aspects of traditional hard disks and SSDs.</p> <p>Part b) For this planning question, a mixture of answers were given and generally some marks were scored for cost, reliability, durability type issues but no-one really got full marks. Some candidates tended to focus on laptop performance and features in general rather than specific storage related considerations.</p>

	<p>Part c) This requires the identification of three storage interfaces such SATA, IDE PCI amongst a list of other possible device interfaces. A few answers incorrectly suggested SSD or several variants of a single interface type such as USB1 USB2 or USB3. This part of the question was generally poorly answered, a lot of candidates put USB and a few had SATA/PATA but not much more than that. Limited marks were obtained for most candidates due to a limited range of interfaces being provided or variants of the same technology, for example, different USB based connectivity.</p> <p>Part d) Some candidates answered with IOPS correctly or same platform but not many. This part was not answered by many candidates, those that did often did not provide relevant answers.</p>
<b>B11</b>	
	<p>This question which was on operating systems and system software was specifically concerned with the testing of computer hardware.</p> <p>Candidates that attempted this question provided lists of components for testing without listing specific testing techniques or tools. A number of answers focused on external peripherals rather than internal computer hardware.</p> <p>Overall a poorly answered question, with many candidates putting input and output devices, some implied graphics card by use of monitor but that was about the only latitude that could be given.</p> <p>Not many candidates were able to give good testing techniques and so usually marks were in the range of 3-4 for a few key components listed.</p> <p>It appeared that some candidates may not have read the question carefully and gave answers concerning peripherals and not hardware. Subsequently those candidates gained only minimal or no marks for considerable effort and explanations concerning performance testing of peripherals. For the few candidates who did address hardware most answers gave a good account of the device and few issues in these answers arose.</p>
<b>B12</b>	
	<p>This question was based on networks. This question asked for the 7 layers of the TCP/IP layer model.</p> <p>Part a) There was a lot of confusion between OSI 7 Layer models and the TCPIP reference model with some candidates referring to the TCPIP 7-layer model incorrectly. A lot of time was spent explaining the protocols and layers rather than on the diagram. Many candidates correctly identified the OSI 7-layer model and linked this to the TCP/IP 4-layer model. Many answers gave either the correct TCP/IP or ISO layers and in the correct order as a listed table and gained 1 or 2 marks. A number of candidates failed to further offer the required description of each layer (in some cases any layer) this resulted in marks being lost.</p> <p>Part b) required the candidate to identify the layer in which protocols such as ARP, TCP and HTTP resided. Most candidates were able to recognise some of the relevant layers, but few gave all three. Some candidates seemed confused which model to refer, so there were some mixed answers with network or internet layer and ARP.</p>

	Candidates answering part b.) often focused on explaining the protocols function rather than identifying which layer of the OSI model they operate at.
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