Examiners' commentary 2017–2018

CO2222 Data communications and enterprise networking – Zone B

General remarks

The assessment is set with the intention of determining whether candidates have achieved the principal objectives of the module. In particular, whether they have acquired the key concepts and technologies that underpin data communications, and can apply this knowledge to solve technical and business problems. The examination paper is divided into two parts, Part A and Part B, and candidates are required to attempt four questions, two from each part.

The following commentary details the main elements of the examination paper on a question-by-question basis, highlighting important aspects and suggesting, where appropriate, what is expected in a 'good' answer and where problems may have arisen. All questions follow a similar format, starting with a simple true/false section followed by a number of subsections, each with a specific focus.

No comment is made in respect of the true/false sections as they simply involve knowledge of specific facts contained in the subject guide. The only advice that can be given by way of help with these is to read the subject guide thoroughly.

Comments on specific questions

Question 1

This question was concerned with a mix of topics, ranging from network topology and design, through datalink protocols (TCP and UDP), to a physical layer data capacity calculation. The emphasis of the question was on 'why', 'where' and 'how' rather than simple bookwork-type descriptions, although there were some marks available for descriptive details. It is important for candidates to recognise what the examiner is asking and focus their answer accordingly.

The final part of the question involved a simple calculation for which candidates should have obtained an answer of 62.4 kbs for the channel capacity.

Question 2

This question focussed on network protocols and control. It was largely descriptive, with all aspects being well covered in the subject guide.

The first part of the question involved a description of the Maximum Transfer Unit (MTU), building on practical work carried out as part of Assignment 1. The next part was concerned with data transparency and caused a few problems for a number of candidates in respect of knowledge of the two main techniques, namely byte and bit stuffing. Likewise, the final part of the question required knowledge of two methods to achieve flow control. Descriptions of 'Stop and Wait' and 'Sliding Window' were expected here.

Question 3

This was also a largely descriptive question, as indicated by 'How' at the start of each of the first three parts. The only advice here is to read the subject guide carefully.

The final section involved a Dijkstra routing problem. These appear frequently and generally cause few problems, other than candidates simply marking the shortest path, without labelling each of the nodes. The majority of marks are awarded for these labels, with generally only a single mark for marking the shortest route.

Question 4

This was the first question on Part B of the examination paper. The question was largely concerned with aspects of business use of networks and how competitive advantage can be gained. The first two parts focussed on application to products, with the second two looking at the impact of different technology choices. Part (d) asked for three different VLAN implementations with port numbers, MAC addresses, and IP addresses being the main contenders, but other valid answers (e.g. applications) also receiving full marks.

Question 5

This question was concerned with larger networks (WANs) and related protocols and operation (specifically Frame Relay and interworking). While a significant proportion of marks were available for descriptive work, there were also elements of 'why' and 'reasons'. As with earlier questions, it is important that candidates recognise what is being asked for in a solution in order to achieve full marks.

The final part of the question involved a Spanning Tree Protocol problem. These appear frequently and are generally well answered. There is no substitute for practice with these problems; the solutions aren't difficult, but do require a methodical approach and attention to detail.

Question 6

The final question covered routing techniques, performance (streaming) and network design. Solutions required a mix of description and explanations and part (b) an example. The descriptive parts of the question are covered well in the subject guide, but as with other questions, candidates' ability to demonstrate understanding of 'how' and 'why' was important in order to achieve full marks.

Summary

The above commentary has attempted to highlight the main features and some of the common problems that arose with the 2017-18 examination paper, in the hope that it will help candidates to prepare for future examinations. Some general issues can be identified, which are summarised here:

- Read the question carefully to understand what the examiner is asking, for example the difference between 'describe', 'explain', 'compare', and so on, and the importance of such words as 'mode' and 'approach'.
- Note the number of marks available for individual parts of a question and provide answers of appropriate length.
- Practise solutions to common practical problems (e.g. Hamming codes, Spanning Tree, and so on.).
- Read the subject guide (several times if necessary).