Principal Examiner Feedback

Summer 2013

GCE Applied ICT (6959) Paper 01 - Communications and Networks

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Unit 6959 – Communications and Networks

General Comments

The case study is released well before the examination but, once again, a disappointingly large number of candidates seemed to be unaware of the general scenario. The context of a WAN was important for some of the questions, but many candidates only answered in terms of a LAN, or with no context at all.

Comments on individual questions

Activity 1 - Network types and components
A briefing document for Viro about:
- devices used when connecting a LAN to a WAN
- sending signals though telephone and fibre optic cables.

(a) Far too many candidates focussed on the cabling components, i.e. cables and connectors, rather than the devices, modem, router, transceiver. Those who did identify the devices seemed to have little idea about what they actually do.

(b) Most candidates had a reasonable diagram of light passing through an optical fibre but very few understood / could explain how modulation works in optical fibre of telephone wire transmission, even if they mentioned the word.

(c) Some candidates were able to explain the use of different frequencies and frequency splitters. Far too many thought that data and voice were carried on different wires within the cable.

(d) Very few candidates understood how multiple signals are carried in fibre optic cables. The idea of different colours was mentioned, as was frequencies. No-one linked the two together. Many candidates had misunderstood the standard diagrams for optical transmission and thought that the data streams were kept apart just by sending them into the fibre at different angles.

Activity 2 – Connectivity and Network Management

(a) An extended writing question on bandwidth and contention in the context of the scenario.

Most candidates were able to explain the concepts of bandwidth and contention. The part they found more difficult was applying those concepts to the scenario.

Weaker candidates tended to deal only with the LAN, mainly concentrating on the passenger WiFi link as an example. Others gave more examples, but without any context.

Better candidates were able to suggest problems and solutions for the WAN, very few managed to tackle both aspects of the system.

(b) A document advising Viro on how to implement central management on the system.

The answers here were quite disappointing. Very few candidates looked at central management of the whole system. Many answers were generic, with discussion of what backup, administration, etc. is, rather than how it could be managed in the context of the scenario. Some marks were scored for management of the LAN, but very few candidates considered both the LAN and WAN aspects of the system.

Activity 3 – Components of a network

Tables which identify the hardware and cabling for the LAN

Part (a) was the hardware table. Far too many candidates thought that simply repeating the list of hardware given in the question would be enough to gain the marks. Better candidates made the effort to give the required detail, makes / models of computers and printers, quantities of cable, sizes of switches, etc.

In part (b), the software table, a lot of good ideas were spoilt by using inappropriate software or giving insufficient detail. e.g. candidates identified that a database would be required for the ticket booking, but then suggested MS Access or simply stated that database software would be needed.

Activity 4 – Network design

A design for the network with notes justifying each major decision.

Most diagrams were clear and well labelled, although many candidates lost marks by not indicating locations or stating which type of cable was being used. There were still instances of servers and printers being used as hubs and of printers being attached to individual PCs rather than networked as needed.

Candidates usually missed out the WAN connections, although most managed to indicate the Internet and there were fewer instances of the Internet being called the Cloud, or just left as a cloud symbol.

As in previous examinations, the notes justifying each major decision regarding the positioning of network devices and equipment, frequently ended up being notes describing the layout or repeating what the case study said should be done.

Activity 5 - Network configuration and protocols

(a) Security measures.

This was poorly answered by many candidates. Most do not seem to have understood the context of the scenario and gave measures that were aimed at keeping the network secure from external threats, not from the passengers who were being given at least partial access, or from the staff who were already working with the LAN.

(b) Settings for a passenger's laptop.

Very few candidates seemed to understand the concept of settings. Most answers were about how to make a manual connection to a wifi link. A handful of candidates were able to write about WiFi discovery or making the laptop ask for IP and DNS settings. A few more understood about changing firewall, proxy, or network type settings

(c) Server configuration

Most marks here were restricted to one or two for describing a guest account or equivalent set up. Very few candidates understood the need for DHCP to be configured.

Standard Ways of Working
Most candidates gained both marks. Only a handful of candidates lost one mark by including extra pages.

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