

Examination report – December 2014 series

2730-012 Communication Systems and Digital Networks 2

Section 1 – Areas of good performance

Syllabus reference: 1.9 – Explain what is meant by; circuit switching, message switching, packet switching and fast packet switching.

This section was answered reasonably well.

Syllabus reference: 1.16 – Describe in relation to data communications what is meant by; data, information and redundancy.

This section was answered reasonably well.

Syllabus reference: 2.5 – List all seven layers of the OSI and describe the function of each layer as well as giving an example of layer implementation.

This section was answered fairly accurately by most candidates.

Syllabus reference: 3.16 / 3.17 – Explain base 2 and base 10 numbering systems and convert from one to the other using binary and dotted decimal notation of IP addresses. Explain the classful Internet addressing scheme, identifying the classes and their default subnet masks, network and host ranges.

These sections were answered very well showing a good understanding in these areas.

Syllabus reference: 3.15 / 3.24 – List the 'well-known' User Datagram Protocol (UDP) port numbers and state the function of each port. Explain the purpose and use of Dynamic Host Configuration Protocol (DHCP) and DNS.

A good understanding of DNS and UDP port numbers was evident here, with good answers.

Syllabus reference: 3.7 / 3.10 / 3.11 / 3.12 – IP protocol.

Good answers given here in these sections, although a lack of detail with explanations sometimes cost marks.

Syllabus reference: 4.6 / 4.8 – Explain concepts and terminology of data transmission. Explain transmission impairments and how they are tackled.

Both sections were answered reasonably well, although quite often explanations regarding impairments were rather brief and vague.

Syllabus reference: 4.12 / 4.22 – Explain the difference between Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE) and list examples. Describe the IEEE 802.3 frame format and explain the function of each field.

A good understanding in both of these sections was evident with good correct answers.

Syllabus reference: 5.27 – State the methods deployed by link-state routing, protocols and provide examples of protocols which use these methods.

Some candidates failed to identify correctly protocols using methods for Link-state.

Syllabus reference: 5.29 – List parameters that can determine the filtering of network traffic.

Generally answered well with correct answers.

Syllabus reference: 5.24 – Describe routing metrics in the context of routing protocols.

Most candidates had a good understanding of routing metrics as correct answers were often given.

Syllabus reference: 5.7 – Explain the concept of VLANs.

Although quite a lot of candidates gave reasonable answers to this section, others fell short, lacking detail with explanations.

Syllabus reference: 5.4 – Describe a Local Area Network (LAN) switch and list the different switching methods employed.

This section was generally answered well with correct answers.

Syllabus reference: 5.21 / 5.22 – Explain static routes and describe their advantages, disadvantages and when they should be utilised. Explain dynamic routing and describe its advantages, disadvantages and how it differs from static routing.

Although quite a lot of candidates gave reasonable answers to this section, others fell short, lacking detail with explanations.

Section 2 – Areas for development

Syllabus reference: 1.14 – Describe what is meant by each of; source coding, channel coding and line coding.

In this section there was a lack of correct answers, mainly because most candidates did not understand the operation of coding systems.

Syllabus reference: 2.9 – Explain that the structure of the OSI is such that the higher-numbered layers build upon and utilise the services of the lower layers.

Most explanations of the build up of layers within the OSI model structure were very brief and mostly incorrect.

Syllabus reference: 3.21 – Calculate subnet addresses and list the host ranges for each subnet within a given subnetted. IP addressing scheme.

Most candidates failed to calculate subnets and hosts from a given subnet mask, showing a distinct lack of knowledge in this area.

Syllabus reference: 3.9 – Sketch the IP version 4 datagram format and briefly explain the function of the different fields.

A lack of understanding in the structure of IPv4 was evident in this section with incorrect answers.

Syllabus reference: 4.7 – Discuss media channel capacity including Nyquist formulation as well as the Shannon capacity formula.

Although many candidates attempted this section, explanations were very weak and mostly incorrect.

Syllabus reference: 4.20 – Understand the basic construction, operation and facilities provided by the X.25 packet switching protocol.

A distinct lack of knowledge prevailed here with very few candidates giving correct X25 facilities.

Syllabus reference: 5.25 – Describe the methods deployed by distance vector routing and provide examples of distance vector routing protocols.

Very weak, incorrect answers were given in this section, showing a lack of understanding of the distance vector protocol operation.

Syllabus reference: 5.11 – Explain the difference between routing and routed protocols and provide examples of each.

Very few candidates could correctly state the difference between routing and routed protocols.

Section 3 – Recommendations

Read questions carefully and when diagrams are called for, produce them in a clear neat manner. If descriptions or explanations are required, make sure they are detailed enough.