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DICT LEVEL II

COMPUTER NETWORKING

MONDAY: 26 November 2018. **Time Allowed: 3 hours.**

Answer ALL questions. Marks allocated to each question are shown at the end of the question.

QUESTION ONE

(a) Differentiate between the terms "routing" and "forwarding" as used in computer networking. (4 marks)

(b) Using the parameters given in the table below, contrast "baseband data transmission" from "broadband data transmission".

	Parameter	Baseband data transmission	Broadband data transmission
(i)	Type of signalling used		
(ii)	Application topology		
(iii)	Transmission mode		
(iv)	Encoding used		

(8 marks)

(c) ABC Company Ltd. is a medium retail enterprise. The management of ABC Company Ltd. have contracted you, a network technician, to help them centralise their diverse functions and applications in one or more dedicated servers.

Required:

(i) Advise the management of ABC Company Ltd. on the appropriate type of network operating system for the retail enterprise. (2 marks)

(ii) Outline four advantages of using the chosen network operating system in (c) (i) above. (4 marks)

(iii) Highlight two disadvantages of using the network operating system in (c) (i) above. (2 marks)

(Total: 20 marks)

QUESTION TWO

(a) Mary Jang, a computer network technician prefers using the dynamic host configuration protocol (DHCP) network management tool to configure internet protocol (IP) addresses.

Required:

(i) Justify why Mary Jang would prefer using DHCP. (2 marks)

(ii) Explain the process of DHCP configuration. (3 marks)

(b) Identify five distinct characteristics of client server architecture. (5 marks)

(c) Distinguish between a "quartet network interface card" and a "duo network interface card". (4 marks)

(d) Highlight six disadvantages of implementing wireless local area networks (WLANs). (6 marks)

(Total: 20 marks)

QUESTION THREE

(a) In a computer network, there are three types of communication between hosts.

Required:
In each case, state the term used for the following types of communication:

(i) Communication between one host to another host. (1 mark)

(ii) Communication between one host to all hosts. (1 mark)

(iii) Communication between one host to selected hosts. (1 mark)

(b) Analyse four functions of a router in a computer network. (8 marks)

(c) The open systems interconnection (OSI) reference model partitions the protocols, functions and devices of a network into different layers.

Required:

(i) Highlight three benefits of the multi-layered approach used in the OSI reference model. (3 marks)

(ii) Citing the respective function in each case, identify three layers of the OSI reference model. (6 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Distinguish between a "storage area network" from a "system area network". (2 marks)

(b) Communication media refers to the path followed by a signal during transmission.

Describe three types of guided media. (6 marks)

(c) Explain the meaning of the following terms as used in computer networking:

(i) Proxy server. (2 marks)

(ii) Gateway. (2 marks)

(iii) MAC address. (2 marks)

(d) Describe the following types of noise in data transmission:

(i) Thermal noise. (2 marks)

(ii) Inter-modulation noise. (2 marks)

(iii) Cross-talk. (2 marks)

(Total: 20 marks)

QUESTION FIVE

(a) (i) Explain the purpose of a network monitor. (2 marks)

(ii) Enumerate four requirements of a network monitor. (4 marks)

(b) (i) Explain how permissions on a shared resource such as a folder or volume could be determined. (2 marks)

(ii) List two protocols that could be used to implement the permissions in (b) (i) above. (2 marks)

(c) Highlight four functions of a network administrator. (4 marks)

(d) Charles Ngao has been hired as the network administrator for Kooler Company Limited. Charles Ngao wishes to set up a computer network for his company.

Explain three fundamental network design goals that he should put into consideration. (6 marks)

(Total: 20 marks)

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