

# KASNEB

## DICT LEVEL II

### COMPUTER NETWORKING

#### PILOT PAPER

September 2015.

Time Allowed: 3 hours.

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

#### QUESTION ONE

- (a) Explain what is meant by a “stub network”. (2 marks)
- (b) Evaluate four common factors that could cause LAN traffic congestion. (8 marks)
- (c) Ann, a network administrator in a well known company wanted to set up computer network in a newly constructed building. She listed a hub switch and a router as some of the network devices that would be required.

#### Required:

- (i) Distinguish between a “hub” and a “switch”. (2 marks)
- (ii) Explain four functions of a router. (8 marks)

(Total: 20 marks)

#### QUESTION TWO

- (a) Explain four advantages of using OSI Layered model in computer networks. (8 marks)
- (b) Ethernet networking uses Carrier Sense Multiple Access with Collision Detection (CSMA/CD) a protocol that helps devices share bandwidth every one device at a time.
- (i) Outline four effects of having a CSMA/CD network sustaining heavy collision. (4 marks)
- (ii) Describe what will happen on the Ethernet LAN when a collision occurs. (8 marks)

(Total: 20 marks)

#### QUESTION THREE

- (a) Enumerate four reasons why a fibre optic cable is not preferred in setting up a LAN. (4 marks)
- (b) Differentiate between the following terms:
- (i) “Collision domain” and “broadcast domain”. (2 marks)
- (ii) A “router” and a “bridge”. (2 marks)
- (c) DHCP provides a lot of information to a host requesting an IP address from the DHCP server.

#### Required:

Explain four other information provided to a host by the DHCP server. (8 marks)

- (d) Distinguish between “digital” and “analogue” transmission using suitable illustrations. (4 marks)

(Total: 20 marks)

#### QUESTION FOUR

- (a) Explain the following network troubleshooting terms:
- (i) Tracert. (2 marks)
- (ii) Ipconfig. (2 marks)

- (b) Outline four important things that a network operating system commonly known as internetwork operating system does. (4 marks)
  - (c) With the aid of a diagram, explain how light signals are propagated through a fibre optic cable. (8 marks)
  - (d) Outline four tasks performed by a network administrator. (4 marks)
- (Total: 20 marks)**

**QUESTION FIVE**

- (a) Explain the following mobile network technologies:
    - (i) 3G. (3 marks)
    - (ii) H<sup>+</sup>. (3 marks)
    - (iii) 4G. (3 marks)
    - (iv) Hot spot. (3 marks)
  - (b) Describe two network protocols used in presentation layer of the OSI model. (4 marks)
  - (c) Differentiate between a “Personal Area Network” and a “Metropolitan Area Network”. (4 marks)
- (Total: 20 marks)**
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