

KIBABII UNIVERSITY COLLEGE

BIT 322: System Administration And Maintenance

Time: 3hrs

Instructions:

Answer all questions in section A (30MKS)

Attempt two questions in section. Each question carries 20MKS

SECTION A (30MKS)

QUESTION ONE

- a) Trace-route is a utility that allows a system administrator to observe the path between two hosts. Explain the following terms with respect to this utility:
 - i. **Round-Trip Time(RTT)** [2mks]
 - ii. **Time to Live(TTL)** [2mks]
- b) Explain why network administrators need to carefully plan for network address space allocated by ISP [4mks]
- c) Describe the DHCP algorithm [6mks]
- d) Use an example to show how IPV6 addresses could be minimised [4mks]
- e) Explain the importance of 'Network prefix' [3mks]
- f) Explain THREE canons under System administrator's Guild (SAGE code) [9mks]

SECTION B (40MKS)

QUESTION TWO

- a) Write notes on the following unicast IPv4 addresses [9mks]
 - i. Default address
 - ii. Loopback address
 - iii. Link-local address
- b) User management is about interfacing humans to computers. Explain **FIVE** main issues related to User Management in an Enterprise network [8mks]
- c) State minimum requirements to install windows server 2008 [3mks]

QUESTION THREE

- a) Explain the following network administration model. [9mks]
 - i. Star Model
 - ii. Mesh Topology
 - iii. Mesh, with partial autonomy and inter-peer policy exchange
- b) Explain THREE features in UNIX/Windows operating system that enhances User management. [6mks]
- c) Describe Ethernet MAC address structure [5mks]

QUESTION FOUR

- a) What are private addresses? State THREE private address blocks [7mks]
- b) Explain Network Address Translation Protocol(NAT) [8mks]
- c) Explain the significance of subnet mask. Illustrate with IPv4 address [5mks]

QUESTION FIVE

- a) A network administrator is allocated a private address block with network prefix '26'. Using this information and relevant IPv4 address calculate
- i) Network address for each subnet [4mks]
 - ii) Number of hosts per subnet [2mks]
 - iii) Broadcast address for each subnet [4mks]
- b) Explain working of **DNS** [10mks]