



**UNIVERSITI COLLEGE TATI (UCTATI)**

**FINAL EXAMINATION QUESTION BOOKLET**

COURSE CODE : BNS 1043  
COURSE TITLE : NETWORK ESSENTIAL  
SEMESTER/SESSION : 2-2024/2025  
DURATION : 3 HOURS

**Instructions:**

1. This booklet contains 5 questions. Answer **ALL** questions.
2. All answers should be written in answer booklet.
3. Write legibly and draw sketches wherever required.
4. If in doubt, raise your hands and ask the invigilator.

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO**

**THIS BOOKLET CONTAINS 5 PRINTED PAGES INCLUDING COVER PAGE**

**QUESTION 1**

- a. There are **TWO (2)** classes of model used in the Networking Principles and Concept, OSI Model and TCP/IP Model. Segregate briefly the processes involved between them. (6 marks)
- b. Draw all layers in (**TCP/IP and OSI model**) and give an example of situation for each layer. (8 marks)
- c. Illustrate the functions of MAC address in the networking devices. Compare MAC address with IP address, and explain the translations of MAC address in the ARP protocol. (8 marks)
- d. State in details **FOUR (4)** reasons why we need for moving from IPv4 to IPv6. (8 marks)

**QUESTION 2**

Match the description to the organization. (Not all options are used.) (9 marks)

A	This organization is responsible for overseeing and managing IP address allocation, domain name management, and protocol identifiers.	ISOC
B	This organization is the largest developer of international standards in the world for a wide variety of products and services. It is known for its Open Systems Interconnection (OSI) reference model.	ISO
C	This organization promotes the open development, evolution, and use of the Internet throughout the world.	EIA
		IANA

**QUESTION 3**

Using the network diagram and information given in Figure 1, Explain on each functions and model of switches, routers, types of cables and WAN links on each side of the domain between Kemaman, Dungun and Marang sites.

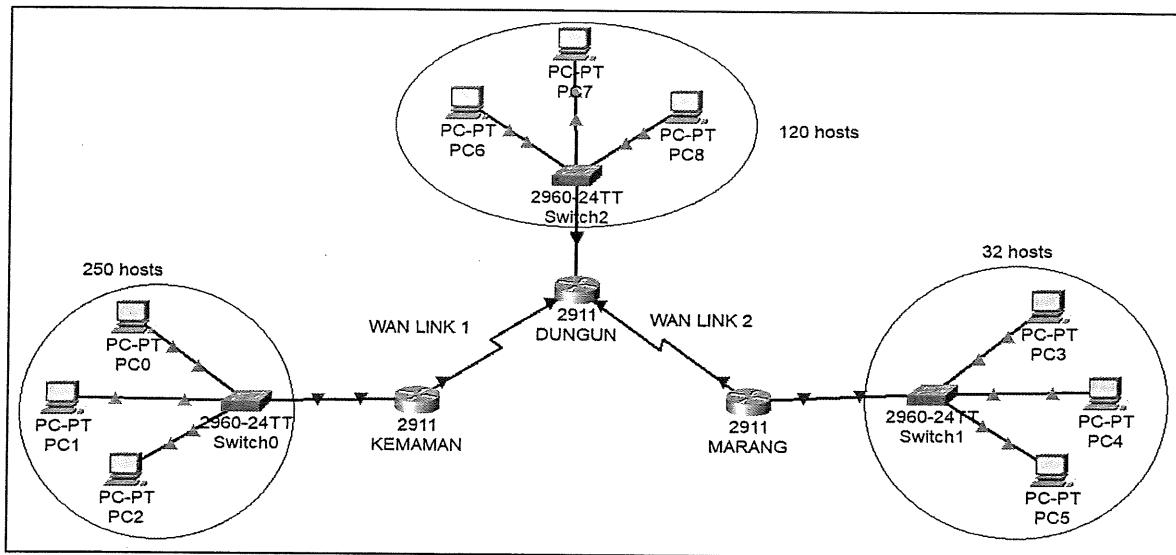


Figure 1

(14 marks)

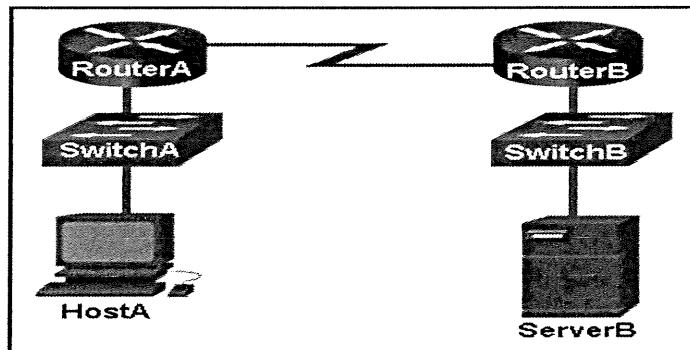
**QUESTION 4**

- a. Match the application protocols to the correct transport protocols.

(5 marks)

DHCP	TCP
FTP	1.
HTTP	2.
SMTP	3.
TFTP	
	4.
	5.

- b. There are two types of routing protocols; static and dynamic. Dynamic Routing protocols are classified into two major categories: distance vector protocols and link-state protocols. Routing Information Protocol (RIP) and Open Shortest Path First (OSPF) are among the most popular Dynamic Routing protocols in TCP/IP suite. Distinguish between Routed Protocol and Routing Protocol. (6 marks)
- c. What factors will help to decide whether Static Routing or Dynamic Routing protocols is best for your network? (May compare both of the system that best fit to the system) (6 marks)
- d. Refer to the Exhibit A. ServerB is attempting to contact HostA.



**Exhibit A**

Which **TWO (2)** statements correctly identify the addressing that ServerB will generate in the process? (Choose **TWO (2)** statement only). (4 marks)

- ServerB will generate a packet with the destination IP address of RouterB.
- ServerB will generate a frame with the destination MAC address of SwitchB.
- ServerB will generate a packet with the destination IP address of RouterA

- e. Explain **THREE (3)** characteristics of the CSMA/CD process? (6 marks)

**QUESTION 5**

- a. Encapsulation is the computer-networking process of concatenating layer-specific headers or trailers with a service data unit (i.e. a payload) for transmitting information over computer networks. Draw a diagram of the specific processes of encapsulation in the OSI model and explain in detail it's encapsulation activities in the respective layers. (7 marks)
  
- b. The underlying protocol was and still is fundamental in ensuring the functionality of the network, include both the Transmission Control Protocol (TCP) and the User Datagram Protocol (UDP). Briefly explain the differences between TCP and UDP? (6 marks)
  
- c. There are **TWO (2)** types of duplex settings used for communications on an Ethernet network. Explain both of them. (4 marks)
  
- d. What cause to the duplex mismatch? (3 marks)

----- END OF QUESTIONS -----

