

**UNIVERSITY COLLEGE TATI (UC TATI)****FINAL EXAMINATION QUESTION BOOKLET**

COURSE CODE	: BNS 1033
COURSE	: INTRODUCTION TO NETWORKS
SEMESTER/SESSION	: 2-2023/2024
DURATION	: 3 HOURS

**Instructions:**

1. This booklet contains 5 questions. Answer ALL questions.
3. All answers should be written in answer booklet.
4. Write legibly and draw sketches wherever required.
5. 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 4 PRINTED PAGES INCLUDING COVER PAGE**

**QUESTION 1**

- a) List **THREE (3)** example of the following: (9 marks)
- i. End device
  - ii. Network device
  - iii. Network media
- b) List **THREE (3)** types of network. (3 marks)
- c) Differentiate TCP/IP and OSI protocol suite using illustration. (12 marks)

**QUESTION 2**

- a) Differentiate between UTP and Fiber Optic cabling on the following features: (10 marks)

Feature	UTP cabling	Fiber-optic cabling
Bandwidth supported		
Distance		
Immunity to electrical hazards		
Media and connector costs		
Installation skills		

- b) State **TWO(2)** current Local Area Network (LAN) topology. (2 marks)

**QUESTION 3**

- a) State **TWO (2)** common network layer protocol. (2 marks)
- b) State **FOUR (4)** characteristic of Internet Protocol version 4 (IPv4). (4 marks)
- c) Explain **THREE(3)** limitation of IPv4 (6 marks)
- d) Provide **THREE (3)** advantages of IPv6. (6 marks)

**QUESTION 4**

- a) Explain **THREE (3)** types of IPv4 communication. (6 marks)
- b) Analyze the Table 1 below and identify the network portion and host portion of the given IPv4 addresses. Given an example on first row. (6 marks)

Table 1

IP Address/Prefix	Network/Host N,n = Network, H,h = Host	Subnet Mask	Network Address
192.168.10.10/24	N.N.N.H	255.255.255.0	192.168.10.0
10.101.90.17/22			
219.165.200.227/27			
172.31.45.252/24			

- c) Convert decimal number to binary equivalent in Table 2. Given an example on first row. (4 marks)

Table 2

Decimal	Binary
192	11000000
168	
16	
255	
5	

- d) Convert hexadecimal number to binary equivalent in Table 3. Given an example on first row. (4 marks)

Table 3

Decimal	Binary
0EC0	0010 0000 0000 0010
44CE	
2002	
FFFF	
08A2	

- e) Differentiate public and private address in IPv4 (4 marks)

QUESTION 5

- a) State **FOUR(4)** services provided by transport layer (4 marks)
- b) Differentiate between Transmission Control Protocol (TCP) and User Datagram Protocol (UDP) (4 marks)
- c) Identify port number group for the following port number range in Table 4: (3 marks)

Table 4

Port number range	Port group
0 to 1023	
1024 – 49151	
4952 - 65535	

- d) State an example of application protocol. (1 marks)
- e) Describe email protocol based on Figure 1. (10 marks)

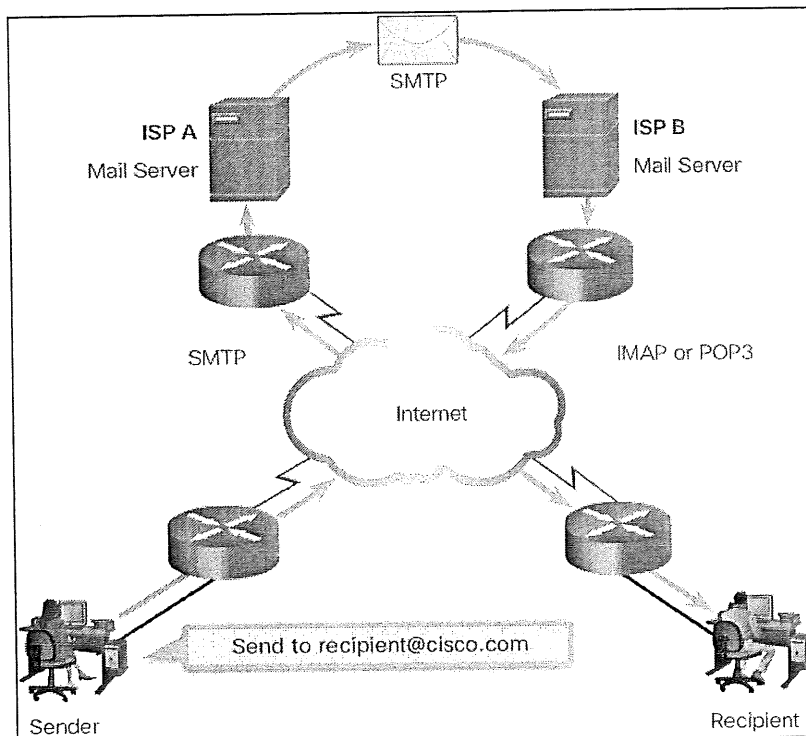


Figure 1

-----End of question-----