GENERAL SIR JOHN KOTELAWALA DEFENCE UNIVERSITY
Faculty of Engineering
Department of Electrical, Electronic and Telecommunication Engineering

B.Sc. Engineering Degree
Semester 5 Examination – April 2024
(Intake 39 - ET)

ET 3102–COMMUNICATION NETWORKS

Time allowed: 3 Hours 8 April 2024

ADDITIONAL MATERIAL NOT REQUIRED

None.

INSTRUCTIONS TO CANDIDATES

This paper contains 4 questions on 4 pages.

Answer ALL questions.

This is a closed book examination.

This examination accounts for 70% of the module assessment. The marks assigned for each question and parts thereof are indicated in square brackets.

If you have any doubt as to the interpretation of the wordings of a question, make your own decision, but clearly state it on the script.

Assume reasonable values for any data not given in or provided with the question paper, clearly make such assumptions made in the script.

All examinations are conducted under the rules and regulations of the KDU.

DETAILS OF ASSESSMENT

Learning Outcome (LO)	Questions that assess LO	Marks allocated (Total 70%)
LO1	Q1	12
LO2	Q2	29
LO3	Q3, Q4	59

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Question 1

(a) Describe the notion of protocol, with respect to a telecommunication system? [2]

(b) Differentiate Synchronous services and Asynchronous services with typical examples. [6]

(c) Differentiate connection oriented services with connectionless services with typical examples. [4]

TCP UDP

Question 2

(a) Explain the process from the event: 'Enter a URL in a browser' to the event 'Browser displays HTML content'. [11]

(b) Explain the anatomy of a URL with an example. [3]

a URI

(c) When we type and press the ENTER button what we information actually transfer, explain with an example? [3]

(d) Explain on process of DNS system with a hypothetical example. [6]

(e) Differentiate HTTP and HTTPS. [6]

80 443

TLS - SSL

Question 3

Transp L Secure Socket Layer

(a) Propose that transport layer is essential with sufficient justifications. [10]

(b) Explain the term: multiplexing with respect to the transport layer. [4]

(c) What type of addressing is used in transport layer to achieve multiplexing? [4]

A=10
B=11

(d) Explain the terms flow control and congestion control ~~suing~~ an appropriate diagram. [4]

a url. C=12
D=13

Question 4

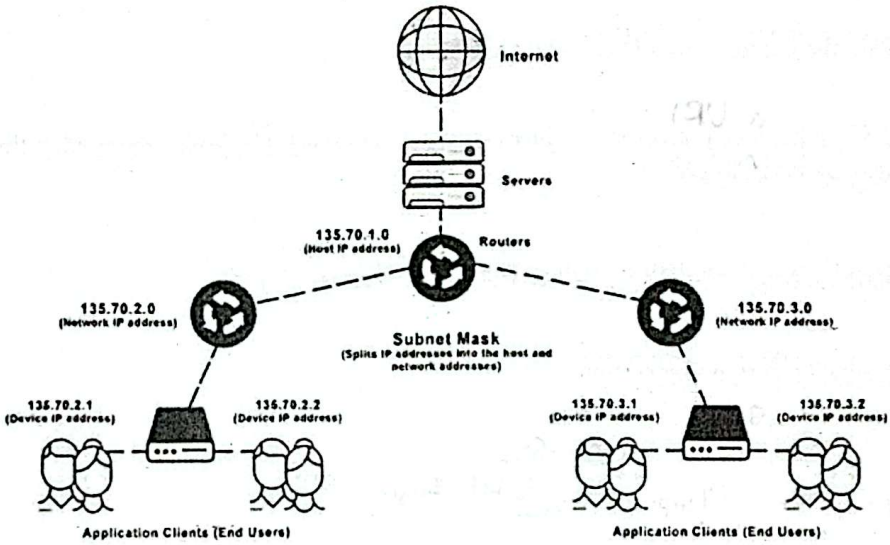
(a) Explain the term routing in network layer with an appropriate example. [4]

(b) Explain the 'Problem of Store and Forward Packet Switching', with an appropriate diagram. [5]

(c) Assuming hypothetical values and an Ethernet network clearly explain how medium access layer addressing is achieved and how an address is transmitted. [8]

48:34:7A:8B:[redacted]D3:64:

(d) Given the following system and data, design subnets and clearly summarize your design outcomes in tabular for under following headings: Network ID, Subnet Mask, Host ID Range, Number of Useable Host, Broadcast ID. [20]



Subnet	1	2	4	8	16	32	64	128	256
Host	256	128	64	32	16	8	4	2	1
Subnet Mask	/24	/25	/26	/27	/28	/29	/30	/31	/32

-End of question paper-