



UNIVERSITY OF COLOMBO, SRI LANKA

UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING

DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY (EXTERNAL)

Academic Year 2013/2014 – 2nd Year Examination – Semester 4

IT4504: Data Communication and Networks
PART 2 - Structured Question Paper

20st July, 2014
(ONE HOUR)

To be completed by the candidate

BIT Examination Index No:

Important Instructions:

- The duration of the paper is **1 (One) hour**.
- The medium of instruction and questions is English.
- This paper has **3 questions** and **8 pages**.
- **Answer all questions.** All questions **do not** carry equal marks.
- **Write your answers** in English using the space provided **in this question paper**.
- Do not tear off any part of this answer book.
- Under no circumstances may this book, used or unused, be removed from the Examination Hall by a candidate.
- Note that questions appear on both sides of the paper.
If a page is not printed, please inform the supervisor immediately.

Questions Answered

Indicate by a cross (x), (e.g.) the numbers of the questions answered.

To be completed by the candidate by marking a cross (x).	Question numbers		
	1	2	3
To be completed by the examiners:			

(1)

(i) Your Internet Service Provider has given you the following information regarding your office data link.

- Link type & bandwidth -Local Leased Circuit with 10Mbps fixed bandwidth in both directions.
- LAN interface of the router - IP 192.248.22.20 (public IP)
- Subnet - 255.255.255.224

(a) What is the network address /subnet ID?

(1 marks)

(b) What is the broadcast address for the specified subnet?

(1 marks)

(c) How many usable IP addresses are available for your equipment?

(1 marks)

(d) Write down IP of the above router interface in Classless Inter-Domain Routing (CIDR) notation?

(1 marks)

(ii) State the technologies that are available to provide world wide web (web browsing)facilities to the rest of the office if you have 150 staff computers.

(4 marks)

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- v) What is the basic equipment (active components) required for the above network? Use a diagram to depict the connectivity between those components.

(16 marks)

A large rectangular box with a solid black border and horizontal dashed lines inside, intended for drawing a diagram. The box is empty and occupies most of the page below the question.

(iii) What is a broadcast domain with respect to networks?

(5 marks)

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(iv) Explain briefly the advantages and disadvantages of modern ring networks.

(5 marks)

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(v) Draw a diagram to show the messages passed between client and the DHCP server in establishing an IP address using the DHCP protocol.

(5 marks)

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