PRINCE OF SONGKLA UNIVERSITY
FACULTY OF ENGINEERING

Midterm Examination: Semester 2   **Academic Year:** 2009-2010

Date: December 26, 2009   **Time:** 13:30 – 15:30

Subject Number: 241-642   **Room:** S201

Subject Title: Multicast Protocols and Applications

Name: _____

Student Number: _____   Signature: _____

Exam Duration: 2 hours

This paper has 5 pages (including this page).

Authorised Materials:

- Anything the student can carry, except for mobile phones and other communication devices.

Instructions to Students:

- *Answer questions in English.* Good English is **not** required.

- Attempt all 4 questions.

- Write the answers in the spaces provided in the examination paper.

- Anything illegible is incorrect.

- Answer briefly where possible, essays are **not** required.

- The marks allocated for each question are shown next to that question. There are 50 marks total for this examination.

For marker's use only.

1	2	3	4	Total

Question 1.   *(5 marks)*

Explain why it is never correct for a router forwarding a multicast packet to transmit the packet back through the same interface from which it was received (in contrast to a router forwarding a unicast packet which sometimes needs to do that.)

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Question 2.   *(15 marks)*

Explain why the **IGMP** (Internet Group Management Protocol) versions 1 and 2, REPORT messages sometimes do not need to be sent by nodes that are members of a group, and what impact that has upon the operation of the protocol, and other devices on the network.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Question 3.   *(20 marks)*

The routing process is normally responsible for finding a path that packets can use to reach the recipients. Multicast is somewhat different, in fact Multicast routing can sometimes be described as being the process of determining where **not** to send multicast packets.

Do you agree?

Explain why (or why not)?

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Question 4.   *(10 marks)*

When an IPv6 Multicast address has the P (Prefix) and T (Temporary) bits set in the 4 flag bits, explain the interpretation of the remaining 112 bits of the multicast address (after the 8 (0xFF) prefix bits, the 4 scope bits, and the 4 flag bits), and the advantages this address assignment plan offers.