B.Sc. Engg. / HD CSE 6th Semester — 23 August 2019 (Morning)

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)
Department of Computer Science and Engineering (CSE)

MID SEMESTER EXAMINATION — **SUMMER SEMESTER, 2018-2019**

DURATION: 1 Hour 30 Minutes — **FULL MARKS: 50**

CSE 4615: Wireless Networks

Programmable calculators are not allowed. Do not write anything on the question paper.

There are **4 (four)** questions. Answer any **3 (three)** of them.

Figures in the right margin indicate marks.

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1. a) How are collisions handled in Back2F (back to frequency) protocol? Explain with appropriate contention diagrams. 6

   b) Explain in brief a proposed channel access mechanism which is most similar to CSMA/CA and uses deterministic back-off. 7

   c) What is the difference between partial ordering and total ordering? 3.66

2. a) Illustrate a timeline diagram of a successful retransmission (a collision and then a successful transmission) in the current WLAN protocol (802.11) when 3 stations are trying to access the channel at the same time. Usage of RTS and CTS is optional. 6

   b) From the given Figure 1, identify which of the nodes are "exposed" and which are "hidden". 3

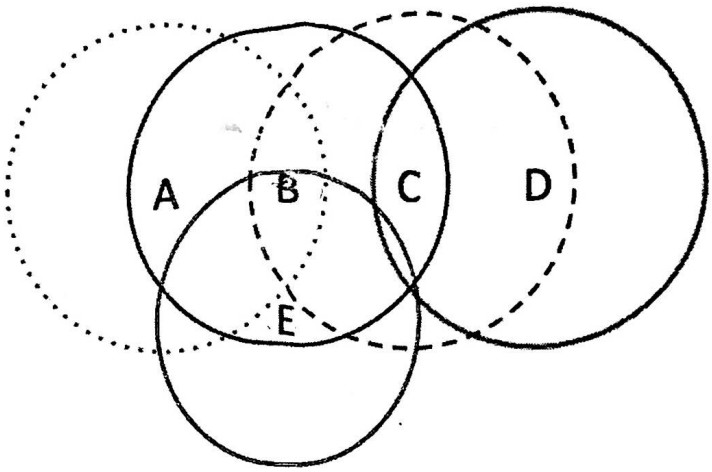

Figure 1: Figure for question 2 (b)

   c) Does 802.11 (WLAN) solve the problems of Hidden and Exposed Terminal? Give appropriate reason. How does CSMA/CN contribute to solve these problems? 3 + 4.66

3. a) What is HiBo? How does it minimize traditional contention time? 4+3

   b) PC protocols have two phases – Learning phase and Transmission phase. What happens in each phase? Provide necessary figures. 9.66

4. a) What is standardization? "Making any change to the current network protocol is a lengthy process without any certainty of approval" - Explain. 1.66 + 3

   b) "The building blocks of wireless networks may or may not have centralized control. However, the presence of such a control is paramount to maintain Quality of Service (QoS)." – Express in terms of networking terminologies. 6

   c) The backbone network of an ESS can be a variety of protocols. The distribution system (DS) connects several BSS together. Can the backbone network (or part of it) be compared to the Internet (a service view)? If so, how? 6