



Sirindhorn International Institute of Technology Thammasat University

Final Examination: Semester 1 / 2019

Course Title: ECS332 (Principles of Communications)

Instructor: Asst. Prof. Dr.Prapun Suksompong

Date/Time: December 11, 2019 / 9:00-12:00

Instructions:

- This examination has 10 pages (including this cover page).
Do not detach any sheet from the exam. Do not remove the staple.

- Conditions of Examination:

Semi-Closed book (.....1.....sheet(s) 1 page both sides of A4 paper note)

This sheet must be hand-written. They should be **submitted with the exam**.
 Do not modify (e.g., add/underline/highlight) content on the sheet inside the exam room.
 Other requirements are specified on the course website.
 (Upto -10 pt if not following the requirements.)

No dictionary Dictionary allowed No calculator Calculator allowed

- **Read these instructions and the questions carefully.**
- Students are not allowed to be out of the examination room during examination. Going to the restroom may result in score deduction.
- Turn off all communication devices and place them with other personal belongings in the area designated by the proctors or outside the test room.
- Write your name, student ID, section, and seat number clearly in the spaces provided on the top of this sheet. Then, write your **first name and the last three digits of your ID** in the spaces provided on the top of each page of your examination paper, starting from page 2.
- The examination paper is not allowed to be taken out of the examination room. Violation will result in a zero (0) score for the examination.
- Unless instructed otherwise, **write down all the steps** that you have done to obtain your answers.
 - When applying formula(s), state clearly which formula(s) you are applying before plugging-in numerical values.
 - You may not get any credit even when your final answer is correct without showing how you get your answer.
 - Formula(s) not discussed in class can be used. However, derivation must also be provided.
 - **Exceptions:**
 - Problems that are labeled with “ENRPr” (Explanation is not required for this problem.)
 - Parts that are labeled with “ENRPa” (Explanation is not required for this part.)
 - These problems/parts are graded solely on your answers. There is no partial credit and it is not necessary to write down your explanation. Usually, spaces (boxes or cells in a table or rows of dashes) will be provided for your answers. “WACSP” stands for “write your answer(s) in the corresponding space(s) provided”.
- The back of each page will not be graded; it can be used for calculations of problems that do not require explanation.
- When not explicitly stated/defined, all notations and definitions follow ones given in lecture.
 - For example, the sinc function is defined by $\text{sinc}(x) = (\sin x)/x$; time is denoted by t and frequency is denoted by f . The unit of t is in seconds and the unit of f is in Hz.
- Some points are reserved for *accuracy* of the answers and also for reducing answers into their *simplest* forms. Watch out for roundoff error. Unless specified otherwise, the error in your final answer should not exceed 0.1%.
- Points marked with * indicate challenging problems.
- Do not cheat. Do not panic. **Allocate your time wisely.**
- Don't forget to submit your second online self-evaluation form by the end of today.