

Name _____ Surname _____ ID _____

PRINCE OF SONGKLA UNIVERSITY
FACULTY OF ENGINEERING

Final Examination: Semester 1

Academic Year: 2011

Date: 14 October 2554

Time: 09.00-12.00 (3 hours)

Subject Number: 241-500

Room: A 401

Subject Title: Research and Development Methodologies

This exam paper has 6 pages. It contains exam sheets, 10 questions 25 marks (25%).

All materials except a computer are allowed.

Instructions to Students:

- Write your answers in either Thai or English.
- Write your name and ID on every page.
- Any unreadable parts will be considered wrong.

Cheating in this examination

Highest punishment: Expelled.

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4. Provide three *keywords* that **most suitable** to describe the following abstract. Order them from the most to the least relevance to the abstract:-

When elementary quantum physics, such as polarized photons, are used to transmit digital information, the uncertainty principle gives rise to novel cryptographic phenomena unachievable with traditional transmission media, e.g. a communication channel on which it is impossible to eavesdrop without a high probability of disturbing the transmission in such a way as to be detected. Such a quantum channel can be used in conjunction with ordinary insecure classical channels to distribute random key information between two users with the assurance that it remains to anyone else, even when the users share no secret information initially. We also present a protocol for coin-tossing by exchange of quantum message, which is secure against traditional kinds of cheating, even by an opponent with unlimited computing power, but ironically can be subverted by use of a still subtler quantum phenomenon, the Einstein-Podolsky-Rosen paradox.

(2 points)

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7. SWOT analysis is one of the important tools for doing research, inform what stage in the research process you should apply this tool to and why? (4 points)

8. There are two main research methodologies. Name, describe and discuss separately on strength and weakness issues. (2 points)

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9. If you have to publish a journal paper, what are criteria for selecting a suitable journal to publish your work? (3 points)

10. If you are interested in doing a research topic on a medical image using microwave signal to detect breast cancer. You pick four keywords which are :-

Imaging/microwave/breast cancer detection/adaptive beamforming

In your literature review process, tell the search tool you plan to use and how to apply these four *keywords* to the chosen search tool? (2 points)