PRINCE OF SONGKLA UNIVERSITY
FACULTY OF ENGINEERING

Exam Duration: 2 hours

This paper has 6 pages, 4 questions 20 marks (20%).

Authorised Materials:

- Writing instruments (e.g. pens, pencils).

- Textbooks, a notebook, handouts, and dictionaries are permitted.

Instructions to Students:

- Scan all the questions before answering so that you can manage your time better.

- Write your answers in **Thai**.

- Write your name and ID on every page.

- Any unreadable parts will be considered wrong.

When drawing diagrams or coding, use good layout, and short comments; marks will not be deducted for minor syntax errors.

Cheating in this examination

Lowest punishment: Failed in this subject and courses dropped for next semester.

Highest punishment: Expelled.

NO	Time (Min)	Marks	Collected	Total	Collected
1	20	4			
2	15	3		**20**	
3	25	5			
4	40	8			

Name_____ID_____

Question 1   (4 Marks)

a)   What would be the cause that two calculators give different results after repeating the
        calculation process?   (1 mark)

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b)   Why is it not possible to forecast the weather in a long run?   (1 mark)

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c)   Explain the butterfly effect. Why could a small change at the input lead to an
        unexpectedly great effect?   (1 mark)

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d)   Why are statistic results sometimes not reliable?   (1 mark)

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Question 2   (3 marks)

a)   Why is the reliability of a series system worse than the reliability of a parallel system?

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b)   How can *System Hardware* be made reliable?   (1 mark)

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c)   How can *Software* be made reliable?   (1 mark)

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Question 3   (5 Marks)

a)   What does the degree of freedom mean?   (1 mark)

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b)   How to calculate the degree of freedom?   (1 mark)

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c)   Give a clear example why sometimes the significant level of 99% is still not good
        enough.   (2 marks)

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d)   Explain why a calculated T-test value for proving a hypothesis using one-tailed test and
        two-tailed test could give different results, say deny H_0 at one test and accept H_0 at another.
        Use graphs to help explanation.

Question 4   (8 Marks)

    a)   Give reasons for statistic study.   (1 mark)

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    b)   Compare *Probability* and *Non-Probability Sampling* and give sampling examples.

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    c)   What is Time Series for?   (1 mark)

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Name_____ID_____

d) Compare *Descriptive* and *Inferential Statistics* and give method examples.

(2 marks)

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e) Compare *Chi-square Test* and *Pearson Product Moment Correlation* (R_{xy}).

(1 mark)

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f) What is Regression Analysis for?   (1 mark)

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Written by Pichaya Tandayya

Name_____ID_____