UNIVERSITI SAINS MALAYSIA

Peperiksaan Kursus Semasa Cuti Panjang

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HET 413 - Linguistik Berkomputer

Masa: [3 jam]

THIS EXAMINATION PAPER CONTAINS FOUR [4] QUESTIONS IN TWO [2] PAGES.

Answer **ALL** the questions.

1.   One obvious application of computer systems using natural language would seem to be in the area of automatic machine translation. Yet efforts to create such systems have not been generally successful. One type of problem is highlighted by Boden (1987) with the example of a sentence being translated from English to Russian, then back again, resulting in *The spirit is willing, but the flesh is weak* being rendered as *The whisky is fine, but the steak's not so good*. What's the basis of the problem in this example? What other types of problems can be identified from the following translations into English?

> *In case of fire do your utmost to alarm the hotel porter.*
> *Physician specializing in women and other diseases.*
> *Ladies are requested not to have children in the bar.*

Elaborate on the above with regard to Barnbrook's discussion on the application of natural language processing (NLP) in the area of machine translation.

[30 marks]

2.   Discuss the following terms.

[a]   Synthetic speech.

[b]   Garden-path sentences.

[c]   Concordance.

[d]   Computational morphology.

[20 marks]

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3.   A computational lexicon has to contain as much information as possible in order to correctly analyse and generate phrases, sentences and text.   Given this, elaborate on the list of information which a computational lexicon should contain. Clarify your answer by providing the information that the lexicon should have for the word <u>bank</u> that has more than one meaning.

[25 marks]

4.   What is a syntactic parser? Elaborate on this and the different structures which such a parser might propose for the following ambiguous sentences:

[a]   She saw the man with a telescope.

[b]   Watch dogs bark..

[c]   Ten rickshaws were reported stolen by the Delhi police.

[25 marks]

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