

# 國立交通大學試題紙

九十九學年度第二次  
博士班資格考

科目：編譯器設計(A)

日期：100 年 7 月 28 日 第 1 頁 共 1 頁

請 “✓” 明 ✓不可看書 可看書

\* 請將答案依題號順序寫入答案卷

答題時字跡需工整，否則不予計分。Write your answers legibly; otherwise you will get zero score.

1. (15 points) Please design a translation scheme for the switch statement. You may use (simplified) Java or C as the source language. and show how to translate this sample Java program. Please describe two kinds of code sequences for a switch statement.
2. (20 points) Why do we need a run-time stack? How can we manage a run-time stack with pointers? What are the pointers? What kinds of run-time overhead related to the run-time stack will occur?
3. (15 points) Registers are an important issue in code generation. Please describe the register-assignment algorithm based on graph coloring. Does your algorithm always produce a *best* object program? Why or why not?

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九十九學年度第二次  
博士班資格考

科目：編譯器設計(B)

日期：100 年 7 月 28 日 第 1 頁 共 1 頁

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答題時字跡需工整，否則不予計分。Write your answers legibly; otherwise you will get zero score.

1. (15%) Explain the following parameter passing techniques.
  - (1) call by value
  - (2) call by reference
  - (3) call by name
  - (4) call by need
  - (5) call by result
2. (10%) Briefly explain the following two statements.
  - (1) Explain why a grammar is not a LL grammar if it contains a left recursion.
  - (2) Explain why a grammar is not a LL(1) grammar if it contains a left factor.
3. (10%) Explain the major differences among SLR(1), LR(1), and LALR(1) parsing tables and schemes.
4. (15%) Consider the following grammar, where S is the initial symbol and {a, b} is the set of terminal symbols:  
 $S \rightarrow Gbb \mid aab \mid bGa$   
 $G \rightarrow a$ 
  - (1) Compute the set of LALR(1) states for the grammar and build the corresponding LALR(1) parse table.
  - (2) Show the parsing process for input baaabb (including the actions/gotos and the input and stack states). In case of conflict, assume YACC's behavior.