1. I talked with Danny and he helped me to figure out question 6.
2. (b) is correct.
3. List:
   1. 2003 Alan Kay, for pioneering many of the ideas at the root of contemporary object-oriented programming languages, leading the team that developed Smalltalk, and for fundamental contributions to personal computing.
   2. 1978 Robert W. Floyd, for having a clear influence on methodologies for the creation of efficient and reliable software, and for helping to find the following important subfields of computer science: the theory of parsing, the semantics of programming languages, automatic program verification, automatic program synthesis, and analysis of algorithms.
   3. 1972 Edsger W. Dijkstra, he was a principal contributor in the late 1950s to the development of the ALGOL, a high-level programming language which has become a model of clarity and mathematical rigor. He is one of the principal proponents of the science and art of programming languages in general, and has greatly contributed to our understanding of their structure, representation, and implementation.
4. Different between compilation and interpretation:
   1. Compilation is read all the source code and translate it into machine code, once the translation is done it can run many times with any input.
   2. Interpretation is read source code line by line and translate it into machine code, but it has to interpret again and again if the input changes.
5. (a) use compiler to translate the Pascal into P-code and fix it to run on the local machine.

(b) once we get the P-code by using the compiler written in Pascal, we can use compiler written in P-code to translate P-code to machine language.

1. Use regular expression to specify the syntax:
   1. Digit\_without\_zero -> 1|2|3|4|5|6|7|8|9

Digit -> 0|1|2|3|4|5|6|7|8|9

Natural number -> Digit\_without\_zero Digit^

* 1. Capital -> A|B

Letters -> a|b|A|B

All strings that starts with capital letters -> Capital Letters^

* 1. Octal\_begins -> 0

Hexadecimal\_begins -> 0x | 0X

Octal\_digit -> 0|1|2|3|4|5|6|7

Hexadecimal\_digit -> 0|1|2|3|4|5|6|7|8|9|a|b|c|d|e|f

Octal -> Octal\_begins Octal\_digit^

Hexadecimal -> Hexadecimal\_begins Hexadecimal\_digit^

Decimal -> Digit\_without\_zero Digit^

1. A string that compose with ‘empty string’ or ‘a’ or ‘b’ repeat with 0 or many times.
2. Token sequence is : 6,16,8,16,14,7,10,14,2,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4(after this is a comment),5,1,14,16