





```

        {
            char name[2];
            int age;
            float mark;
        }
        {
            char name[2];
            int age;
            float mark;
        }

```

Draw the memory layout for the records (1) and (2) for a 32-bit aligned machine.

- b) Explain the difference among strict and loose name equivalence (3)

### PART C

*Answer any two full questions, each carries 9 marks.*

- 14 a) Describe four parametric-passing modes. How does a programmer choose a parameter mode in a particular scenario (6)
- b) Describe three alternative means of allocating co-routine stacks. (3)
- 15 a) What is a subroutine calling sequence? What does it do? What is meant by subroutine prologue and epilogue? (6)
- b) How let and letrec constructs work in scheme? (3)
- 16 a) rainy(seattle). (6)  
rainy(rochester).  
cold(rochester).  
snowy(X) :- rainy(X), cold(X).

From the above facts and rules, explain the backtracking strategy in Prolog.

- b) Draw a DFA to accept all strings of zeros and ones containing an even number of each. How a Scheme interpreter works in this case? (3)

### PART D

*Answer any two full questions, each carries 12 marks.*

- 17 a) Generate strings and output from the following pattern (9)
- i) /a(bc)?/
  - ii) /a(bc)+/
  - iii) /a(bc){3}/
  - iv) /a(bc){2,}/
  - v) /a(bc){1,3}/
  - vi) /b[aeiou]d/
  - vii) /0x[0-9a-fA-F]+/
  - viii) \$foo = "albatross";  
\$foo =~ s/[aeiou]/-/g;
  - ix) \$foo = "albatross";  
\$foo =~ s/lbat/c/;

- b) Explain the difference between dynamic and static method binding (3)

- 18 a) What are characteristics of scripting language? Explain in detail (7)  
b) Summarize the architecture of Java Virtual Machine (5)
- 19 a) Explain the various synchronization mechanism used in busy wait synchronization? (6)  
b) With a neat diagram explain the architecture of threads (6)

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