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 1: $Id: 2014q4-soln1,v 1.3 2014-10-29 13:36:09-07 - - $
 2: Answers to 2014q4-test1, page 1
 3:
 4: _____
 5: Question 1. [3]
 6:
 7: C++       |Bjarne Stroustrup's most noted contribution to language design
 8: COBOL     |Business data processing language, designers included Grace
 9: Algol 60  |Designed in Europe to express algorithms in a structured way.
10: C         |First version of Unix was 9000 lines of this language
11: Lisp      |List processing language typically used in artificial
12: FORTRAN   |Numeric and scientific computation language developed at IBM.
13: Simula 67|Simulation language that influenced the design of C++.
14: Pascal    |Small language for structured programming designed by Niklaus
15: Java      |Sun Microsystems claimed this language is ``write once, run
16:
17: _____
18: Question 2. [3]
19:
20: while (<>) {
21:    @nums = split m/ /;
22:    $total[$_] += $nums[$_] for 0..3;
23: }
24: print " @total\n";
25:
26: _____
27: Question 3. [4]
28:
29: Object subclass: Complex [
30:    |real imag|
31:    real [ ^ real ]
32:    imag [ ^ imag ]
33:    real: r [ real := r. imag := 0. ]
34:    imag: i [ real := 0. imag := i. ]
35:    real: r imag: i [ real := r. imag := i. ]
36:    + other [
37:       |r|
38:       r := Complex new.
39:       r real: self real + other real imag: self imag + other imag.
40:       ^ r
41:    ]
42: ]
43:
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44:
45: Answers to 2014q4-test1, page 2
46:
47: _____
48: Question 4(a). [1]
49:
50: sub fac{
51:     my ($n) = @_;
52:     my $s = 1;
53:     $s *= $_ for 1..$n;
54:     return $s;
55: }
56:
57: _____
58: Question 4(b). [2]
59:
60: Number extend [
61:     fac [
62:        |s|
63:        s := 1.
64:        1 to: self do: [:i | s := s * i].
65:        ^ s
66:     ]
67: ]
68:
69: _____
70: Question 5. [2]
71:
72: Parametric (template, generic):
73:         template <typename T> class stack {...}
74:         class stack<T> {...}
75: Inclusion (inheritance):
76:         class bar {...}
77:         class foo extends bar {...}
78:
79: _____
80: Question 6. [2]
81:
82: Coercion (conversion):
83:         int a; double b; a = b;
84: Overloading:
85:         void foo (double);
86:         void foo (stringnt);
87:
88: _____
89: Question 7. [3]
90:
91: while ($line = <>) {
92:     ++$count{$_} for split m/\W+/, $line;
93: }
94:
95: push @array, sprintf "%10d %s\n", $count{$_}, $_ for keys %count;
96: @array = sort { $b cmp $a } @array;
97: print $array[$_] for 0..9;
98:
```

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 99:
100: Answers to 2014q4-test1, page 3
101:
102:  1.      (D) ? :
103:
104:  2.      (A) $!
105:
106:  3.      (A) ((a-b)*c)+d
107:
108:  4.      (C) [4+9] value
109:
110:  5.      (B) M is possible, but not D.
111:
112:  6.      (C) When the program is linked.
113:
114:  7.      (C) map
115:
116:  8.      (A) $p->{$k}
117:
118:  9.      (D) sum value: 3 value: 4
119:
120: 10.      (B) 0.0/0.0
121:
122: 11.      (C) The stack frame of the function in which this function is
123:
124: 12.      (A) goto
125:
```