CIS166 - Programming in Perl
Fall 2004 MIDTERM

1) What is the most basic data type in Perl?
- [ ] Integer
- [ ] Array
- [ ] Real
- [x] Scalar
- [ ] String
- [ ] Hash
- [ ] Reference

2) An algorithm is:
- [ ] language independent.
- [ ] a set of instructions to solve a problem.
- [x] all of the above.
- [ ] none of the above.

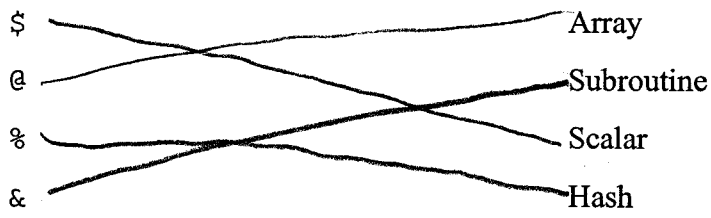
3) What are the phases of a software development cycle? (Select more that one.)
- [x] Design
- [x] Evaluation
- [x] Coding
- [x] Test and debug
- [x] Specification
- [x] Maintenance

4) What are the types of Literal Strings? (Select more that one.)
- [x] Single-quoted
- [x] Double-quoted
- [x] Word-quoted → qw / /
- [x] All of the above.

5) You can do variable interpolation into:
- [ ] Single-quoted strings.
- [x] Double-quoted strings.
- [ ] Word-quoted strings.
- [ ] None of the above.

6) An expression is:
- [ ] two or operators that perform a calculation.
- [ ] a meaningful and eloquent manner of speaking.
- [x] something that evaluates to a value.
- [ ] a function call.

7) Match the variable meta-character to it's data type by drawing a line between them:



Use the following program to answer the next three questions. ***DO NOT ENTER THE PROGRAM AND RUN IT!:***

```
#!/usr/bin/perl -w
use strict;

my %hash = (
    May => 5,
    Me => 'Mark',
    Mo => 'stooge',
    Moo => 'Cow'
);

foreach my $key (reverse keys %hash) {
    print "$key:$hash{$key} ";
}
```

Moo
Mo
Me
May

8) In the `foreach` line, the `%hash` is evaluated in what context?

- [ ] Hash Context
- [ ] Scalar Context
- [x] LIST Context - returns a list of keys
- [ ] Expression Context

9) What will be the output of the program ? Moo:Cow Mo:Stooge Me:Mark May:5 (reverse sort keys %hash)

- [ ] `May:5 Me:Mark Mo:stooge Moo:Cow`
- [ ] `May:5 Me:Mark Moo:Cow Mo:stooge`
- [ ] `Mo:stooge Moo:Cow Me:Mark May:5`
- [x] Indeterminate because we don't know the order the keys will come out of the hash.
- [ ] There is an error in the program, and no output will be given.

10) The value in `%hash` is:

- [ ] a Scalar value.
- [ ] an Array reference.
- [x] a Hash table.
- [ ] a Hash reference.
- [ ] None of the above

11) A programming is:
- ☐ about writing code.
- ☑ about creating algorithms to solving problems and translating the algorithms into instructions that computer can perform.
- ☐ about developing large programs.
- ☐ none of the above.

12) Is you name on the first page of this test? (Worth 0 points)
- ☑ Yes (This better be the correct answer!)
- ☐ No

13) Write a regular expression that will match a positive or negative integer, i.e: `-3`, or `2`, or `10`, etc.

(+?)

/-?\d+/

14) A statement modifier is:
- ☑ a option that can follow a match or substitution operator.
- ☐ ~~a pro~~gram that converts english sentences from past tense to present tense.
- ☐ a control structure that can be appended to a single statement.
- ☐ ~~a co~~mmand line option to the Perl executable itself, that modifies the behavior of the executing script.

15) Variables are:
- ☐ by default, local to the scope were they are first used.
- ☑ global by default unless modified with a `my()`.
- ☐ local or global by how they are named.
- ☐ None of the above.

16) The argument to a user defined subroutine are defined:
- ☐ By explicitly defining the arguments by name in the subroutine definition.
- ☑ in the `@_` array.
- ☐ in the variables `$1`, `$2`, `$3`, etc.
- ☐ You must pass variables using locally defined name using `my()`.

17) Which regular expression will match a Perl Hash variable name?
- ☐ ~~`/%\b.+\b/`~~
- ☐ `/%(\w+?)/`
- ☑ `/%[A-Za-z_]\w*/`
- ☐ ~~`/%/`~~

18) If you wanted to find the size of a file, you would:

- ☐ `$size = size($filename);`
- ☐ `open(FILENAME, $filename); $size = size(FILENAME);`
- ☑ `$size = -s $filename;`
- ☐ All of the above.

19) What module would you use to process command line options that are single characters (-a, -b, -c, etc.)

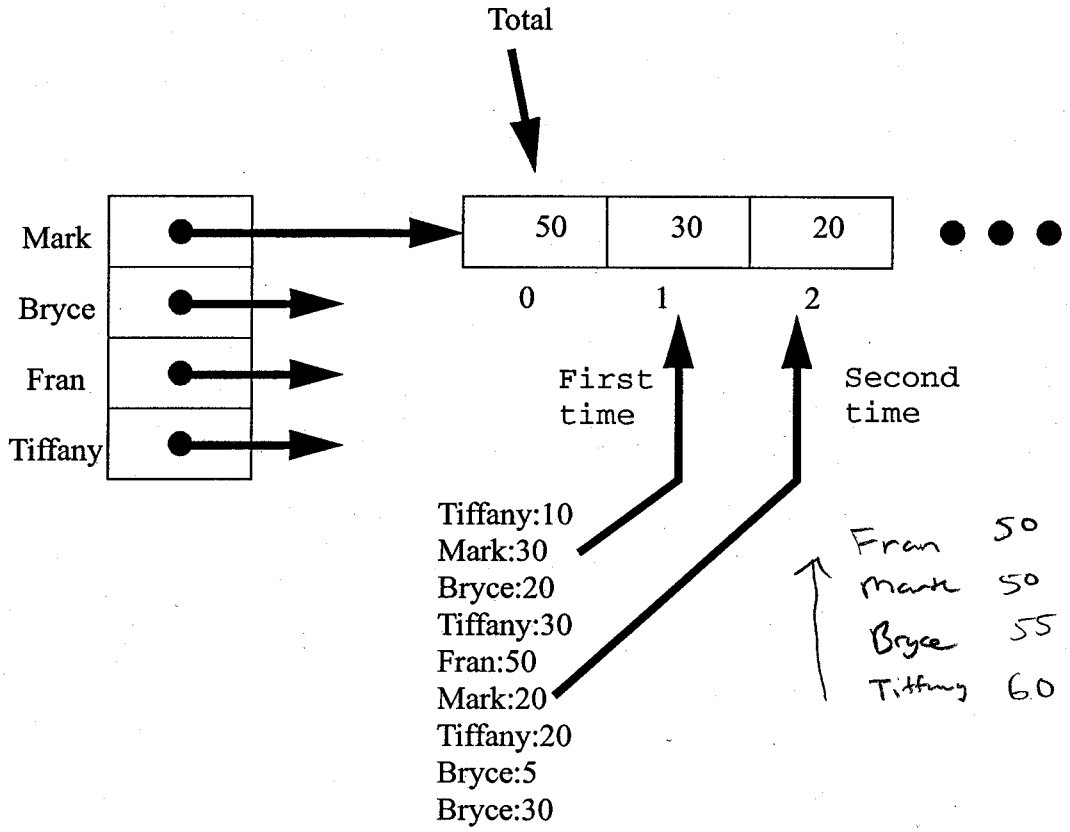
Getopt :: Std

20) How would you include a module into your program?

- ☐ `include 'module';`
- ☑ `use module;`
- ☐ `require 'module'`
- ☐ all of the above.

21) Write a program that: (Worth 16 Points)

A Uses the DATA file handle to read the following data into a complex data structure that looks like:



Fran 50 50
Mark 50 30 20
Bryce 55 20 5 30
Tiffany 60 10 30 20

B Print out the results, starting with the highest total, like:

```
Mark - Total=50 Each: 30, 20
```