

Part 1: (39 points - 3 points for each problem)

- (b) 1. What protocol is widely used by all computer connections to the Internet?
(a) HTTP (b) TCP/IP (c) FTP (d) PPP
- (b) 2. Which is a fully qualified domain name?
(a) cs.twsu.edu (b) kirk.cs.twsu.edu (c) kirk.cs.twsu (d) kirk.cs.twsu.edu:6550
- (d) 3. The default port for the HTTP server is:
(a) 22 (b) 25 (c) 79 (d) 80
- (a) 4. Which one is not a Web browser?
(a) Apache (b) Netscape Navigator (c) Mozilla (d) lynx
- (c) 5. If we want some text to appear in a monospace font, which tag will be used?
(a) <ms> (b) <sp> (c) <tt> (d) <i>
- (a) 6. What is the one required attribute of an tag?
(a) src (b) size (c) valign (d) align
- (c) 7. What tag is used to define the terms in a definition list?
(a) <df> (b) <dl> (c) <dt> (d) <dd>
- (b) 8. Which one is the default scalar variable in Perl?
(a) @_ (b) \$_ (c) \$\$ (d) \$!
- (a) 9. How do you get the address of the scalar variable \$fruit?
(a) \ \$fruit (b) &\$fruit (c) \$\$fruit (d) /\$fruit
- (c) 10. Which function is used to specify the local variable?
(a) local (b) static (c) my (d) private
- (d) 11. How is a space encoded in a query string? Its decimal ASCII value is 32.
(a) @32 (b) %32 (c) @20 (d) %20
- (d) 12. How does a Perl program specify that it needs to access the CGI module?
(a) include CGI; (b) define CGI; (c) access CGI; (d) use CGI;
- (c) 13. How do you get the documentation of the function flock?
(a) perldoc flock (b) perldoc -d flock (c) perldoc -f flock (d) perldoc -h flock

Part 2: (61 points)

1. Briefly explain these terminologies. If they are acronyms, also write what they stand for. (12 points)
- (a) **MIME** The Multi-purpose Internet Mail Extensions is an extension used to exchange different kinds of data files on the Internet: audio, video, images, application programs
 - (b) **HTTP** The HyperText Transfer Protocol provides a standard form of communications between browsers and Web servers.
 - (c) **XHTML** The Extensible Hypertext Markup Language is the set of markup symbols or codes inserted in a document to make it displayable on the World Wide Web. It is an application of the Extensible Markup Language (XML).
 - (d) **CGI** The Common Gateway Interface is the interface between a browser and software on the server.
2. Describe the five most commonly used HTTP request methods. (10 points)
- Ans:

GET	Return the contents of the specified document
HEAD	Return the header information for the specified document
POST	Execute the specified document, using the enclosed data
PUT	Replace the specified document with the enclosed data
DELETE	Delete the specified document

3. What are the three categories of Perl variables? Give an example for each case. (6 points)

Ans: Scalar variables: \$name, Array: @list, Hash: %ages

4. Give one example for pass-by-value and one for pass-by-reference in Perl? (6 points)

Ans:

```
my ($a, $b) = (2, 3);
swop($a, $b);
swap(\$a, \$b);
```

```
sub swop { # Call-by-value
    my ($a, $b) = @_;
    $temp = $a;
    $a = $b;
    $b = $temp;
}
```

```
sub swap { # call-by-reference
    my ($c, $d) = @_;
    $temp = $$c;
    $$c = $$d;
    $$d = $temp;
}
```

5. Consider the following Perl code. Write the results after running this code. (6 points)

```
@list = (10, 2, 7, 6, 9);
unshift @list, (4, 8);
$len = @list;
print "$len \n";
print "$#list \n";
$val = pop @list;
print "$val \n";
```

Ans:

7
6
9

6. Write a Perl Program to read in a HTML document and transforms all HTML tags to lowercase letters. For example, convert to . (9 points)

Ans:

```
#!/usr/bin/perl -w
while(<>) {
    s/(<[~>]+>)/lc($1)/eg;
    print;
}
```

7. (a) Write a HTML document with a text input form to collect the user's name. This HTML document will request a CGI program `reply.pl` in the `cgi-bin` directory of your account at `kirk.cs.twsu.edu:6550`.
- (b) Write the CGI program `reply.pl` that returns a greeting with the user's name to the user.
Hint: Use the following functions in `CGI.pm`: `param()`, `header()`, `start_html()`, and `end_html()`.

(12 points)

Ans:

```
(a) <html>
    <head>
    <title>HTML to call the CGI-Perl program reply.pl</title>
    </head>
    <body>
    <form action = "http://kirk.cs.twsu.edu:6550/cgi-bin/cs655/reply.pl"
        method = "POST">
    <input type = "text" name = "name" size = "20">
    <input type = "submit" value = "Submit">
    </form>
    </body>
</html>
```

```
(b) #!/usr/bin/perl -w
# reply.pl - a CGI program that returns a greeting to the user

use CGI qw(:standard);

my $name = param("name");
print header();
print start_html("Greeting");
print "$name! Greetings from your Web server!";
print end_html();
```