1. (50 pts) Basic Web/HTTP concepts
(1) List 2 major languages used in the Web Client-side programming.
   (Chapter 01)
   HTML5, Javascript

(2) List 3 major languages used in the Web Server-side programming.
   (Chapter 01)
   Perl, PHP, Java

   Problem: Javascript is not a server side language.

(3) Name a secured protocol used in the Web computing.
   (Chapter 01)
   HTTPS

   Problem: SSL and Secure file transfer are Internet protocols, not Web protocols.

(4) What is the main difference between the HTTP and HTTPS protocols?
   (Chapter 01)
   HTTPS = HTTP + SSL (Secure Socket Level) to encrypt the data in the HTTP header and body.

(5) Briefly describe the differences between the two commonly used HTTP request methods.
   (Chapter 01)
   GET method attach the form data on the URL and POST method put the form data in the HTTP body.

   Problem: GET is not a method to get info from the server.

(6) What HTML tag and type are used for the file upload?
   (Lecture CGI Input with CGI.pm: cgi05.ppt)
   HTML tag is INPUT, and type is FILE.

(7) Which Web Server environment variable is used to enforce the HTML form must come from the same server to prevent the man-in-the-middle attack?
   (Lecture Security: cgi08.ppt)
   HTTP_REFERER

   Problem: $ENV includes all the environment variables

(8) What is the security issue when save the form data into the external file?
   (Lecture Security: cgi08.ppt)

There is a potential <u>Deny-of-Server (DOS) attack</u> by dumping huge amount of data into the external file.

(9) What is the security issue when read in the file name from user HTML form and use it without validation in the server?
   (Lecture Security: cgi08.ppt)
   There is a potential <u>injection attach</u> by injecting the attacking code into the file name.

(10) Name two applications that need to maintain the state for a user in the web server.
   (Lecture Maintaining States: cgi011.ppt)
   The two common applications that need to maintain state are Login and Shopping Card.

2. (50 pts) Web Page development

(1) Develop a student.html web page using any editor. The web page layout should have your club image, a HTML5 form with a drop down list of three college names, and a text field for the email. User will select a college name, enter an email address, and submit them to the playground Web Server CGI/Perl script student.cgi. There should be a JavaScript function to validate the email. The form will call the student.cgi to echo the college name and the email address back to the user's Browser if the email is validated.
(Please don't use HTML5 email field to do the validation. You should use Javascript email validation similar to Lab05).

(2) Using FileZilla to upload and test the student.html and student.cgi in playground. Submit a MS report with the following 4 screen shots:

   Screen shot 01: Web page created in the editor.
   Screen shot 02: HTML form in playground.bradley.edu web server opened in a Browser with a user selected college name and a wrong email address without the @ sign.
   Screen shot 03: Popped up Alert window to tell the user to enter a validate email address.
   Screen shot 04: Echoed back email and college name by the student.cgi.

   Upload the MS word/pdf report, student.html and student.cgi files in the drop box on the class Sakai web site.

Problems:
1. **Used the HTML5 email validation, not the Javascript validation as required.**
2. **No Javascript validation code.**
3. **Didn't use the dropdown list for college names as required.**
4. **CGI/Perl has internal server error.**