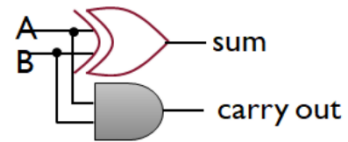
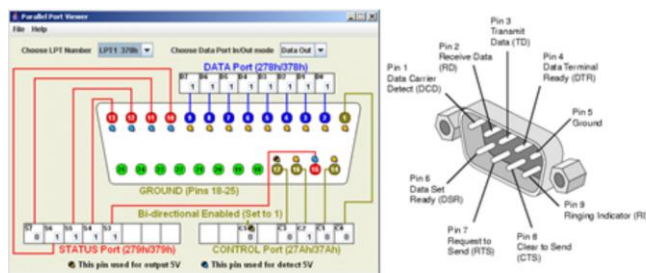


1. The development of computer hardware can be roughly categorized to four or five generations. The methods of manufacturing electronics are used to separate the generations. Could you describe the manufacturing techniques or the electronic components used in the 1<sup>st</sup>, the 2<sup>nd</sup>, the 3<sup>rd</sup>, and the 4<sup>th</sup> generation of computers? (10%)
2. Please write a true table for the diagram shown on the right. (5%)
3. Please change the binary number 1111 0101 to (a) a decimal, (b) an octal, and (c) a hexadecimal numbers. (5%)
4. Please use the voltage regulator, LM7805, and a 9-V battery to design a 5-V power supplier. (5%)



5. Please explain the difference of signal transmission between the RS-232 and the parallel (printer) port. (5%)



6. Please describe how the following operation system work: 1. batch operating system, 2. multiprogramming operation system, and 3. time-sharing operating system. (5%)
7. Please describe the usage of the following DOS commands: 1. mkdir, 2. format, 3. type. (5%)
8. For a 8-bit, signed integer, please show the decimal numbers 20, -40, 110, -120 in binary form. (10%)

Programming:

1. Please use the DOS batch file for programming. Please write a program to get two decimal numbers from users and transform them into binary numbers. Then, calculate the and operation between the two numbers and show the result in binary form. (25%)
2. Please design a form to collect users' given name, family name, gender, birthday,

telephone number, and email address. Remember to use the input type of select and date. Please put a submit button in the form. When the submit button is clicked, please put the user's data into a table shown in a paragraph after the form. The records of the table will be increased when you submit more user's data. On the table, please design the clicking of the telephone number for making a phone call and the clicking of the email address for sending an email. Please use style to decorate the appearance of your html file. (25%)