9. [12 points] Consider the following series, all of which converge:

$$\textbf{A.}\ \sum_{n=1}^{\infty} \frac{1}{n^2+3} \qquad \textbf{B.}\ \sum_{n=1}^{\infty} \frac{(-1)^n}{2^n+1} \qquad \textbf{C.}\ \sum_{n=1}^{\infty} \frac{n+1}{n^3}$$

$$\textbf{D.}\ \sum_{n=1}^{\infty} \frac{2(-1)^n}{n} \qquad \textbf{E.}\ \sum_{n=1}^{\infty} \frac{1+e^{-n}}{n!} \qquad \textbf{F.}\ \sum_{n=1}^{\infty} \frac{10+\cos(n)}{n^2}$$

Answer the following questions considering these series. For each question, you should list **ALL** answers that are possible on the space provided. List only the corresponding letter to the series you wish to use in your answer. For instance, if you wanted to include the series $\sum_{n=1}^{\infty} \frac{1}{n^2+3}$ in your answer, you should only write the letter "A". You do not need to show your work for this problem.

a. [3 points] For which of the above series is it appropriate to use the Limit Comparison Test if comparing to the series $\sum_{n=1}^{\infty} \frac{1}{n^2}$? Write all possible answers on the line provided below. If no series satisfies this condition, write "none".

$$\underline{\hspace{4cm}} \textbf{ A, C}$$

b. [3 points] For which of the above series is it appropriate to use the Ratio Test? Write all possible answers on the line provided below. If no series satisfies this condition, write "none".

$$\underline{\hspace{4cm}} \textbf{ B, E}$$

c. [3 points] For which of the above series is it appropriate to use the Alternating Series Test? Write all possible answers on the line provided below. If no series satisfies this condition, write "none".

$$\underline{\hspace{4cm}} \textbf{ B, D}$$

d. [3 points] Which of the above series is conditionally convergent? Write all possible answers on the line provided below. If no series satisfies this condition, write "none".

$$\underline{\hspace{4cm}} \textbf{ D}$$