Test the convergence of the following

(i) $\dfrac{1}{1} + \dfrac{1}{1!} + \dfrac{1}{2!} + \dfrac{1}{3!} + \cdots = \sum \dfrac{1}{n!}$

(ii) $\sum \dfrac{n}{n^n}$

(iii) $\sum \dfrac{n^p}{n!}$

(iv) $\sum \dfrac{n^2}{2^n}$

(v) $\sum \dfrac{a^n}{x^n + a^n}$ $\quad (x > a)$

(vi) $\dfrac{x}{1 \cdot 2} + \dfrac{x^2}{2 \cdot 3} + \dfrac{x^3}{3 \cdot 4} + \cdots$

vii) $\displaystyle\sum_{n=0}^{\infty} \frac{2^n + 5}{3^n}$

viii) $\displaystyle\sum_{1}^{\infty} \frac{(2n)!}{n!\, n!}$

ix) $\displaystyle\sum_{1}^{\infty} \frac{4^n\, n!\, n!}{(2n)!}$

x) $1 + \dfrac{x}{2} + x^2/5 + \dfrac{x^3}{10} + - - - = \sum \dfrac{x^n}{n^2 + 1} \cdot \qquad n > 0$