Write the correct answers on page 1.
Justify your answers on page 2.

1. The series \( \sum_{n=2}^{\infty} \frac{1}{n\sqrt{\ln n}} \) is (i) convergent or (ii) divergent.

2. The series \( \sum_{n=1}^{\infty} (-1)^n \frac{n-1}{n^2 + n} \) is (i) absolutely convergent or (ii) convergent or (ii) divergent.

3. Does the series \( \sum_{n=1}^{\infty} (2^{1/n} - 1) \) converge or diverge?

4. Show that the series \( \sum_{n=1}^{\infty} (-1)^n 2^{1/n} \) is divergent.

5. What can you say about the series \( \sum_{n=1}^{\infty} n^2 e^{-n} \)?