1. **Which of the following series is conditionally convergent?**

A) $\sum_{n=1}^{\infty} (-1)^n e^n$

B) $\sum_{n=1}^{\infty} (-1)^n e^{-n}$

C) $\sum_{n=1}^{\infty} (-1)^n n^{1/2}$

D) $\sum_{n=1}^{\infty} (-1)^n n^{-1/2}$

E) $\sum_{n=1}^{\infty} (-1)^n \ln n$

2. **Use the first three terms of the MacLaurin series for e^{-x^2} to approximate $\int_0^1 e^{-x^2}\, dx$**

A) $\frac{3}{4}$

B) $\frac{23}{30}$

C) $\frac{10}{11}$

D) $\frac{17}{25}$

E) $\frac{5}{7}$

3. **Consider the two series**

$$\textbf{I.} \quad \sum_{n=1}^{\infty} (-1)^{n+1} \sin\left(\frac{1}{n}\right)$$

$$\textbf{II.} \quad \sum_{n=1}^{\infty} (-1)^{n+1} \frac{1}{n(\ln n)^2}$$

A) both series converge absolutely

B) series (I) converges absolutely, while series (II) converges conditionally

C) series (I) converges conditionally, while series (II) converges absolutely

D) both series converge conditionally

E) at least one of the series diverges

4. **The interval of convergence of the power series**

$$\sum_{n=1}^{\infty} \frac{(-1)^{n+1}(x-1)^n}{n3^n}$$

is of the form

A) $[1-r, 1+r]$

B) $[1-r, 1+r)$

C) $(1-r, 1+r]$

D) $(1-r, 1+r)$

E) The series converges only at $x = 1$