1.(1 pt) Match each of the following with the correct statement.
A. The series is absolutely convergent.
C. The series converges, but is not absolutely convergent.
D. The series diverges.

— 1. $\sum_{n=1}^{\infty} \frac{(-4)^n}{n^5}$
— 2. $\sum_{n=1}^{\infty} \frac{(n+1)(3^2-1)^n}{3^{2n}}$
— 3. $\sum_{n=1}^{\infty} (-1)^n \frac{\sqrt{n}}{n+10}$
— 4. $\sum_{n=1}^{\infty} \frac{(-1)^n}{3n+5}$
— 5. $\sum_{n=1}^{\infty} \frac{\sin(6n)}{n^2}$

2.(1 pt) Match each of the following with the correct statement.
A. The series is absolutely convergent.
C. The series converges, but is not absolutely convergent.
D. The series diverges.

— 1. $\sum_{n=1}^{\infty} \frac{(-1)^n}{5n+6}$
— 2. $\sum_{n=1}^{\infty} \frac{\sin(5n)}{n^2}$
— 3. $\sum_{n=1}^{\infty} \frac{(-2)^n}{n^3}$
— 4. $\sum_{n=1}^{\infty} \frac{(n+1)(4^2-1)^n}{4^{2n}}$
— 5. $\sum_{n=1}^{\infty} (-1)^n \frac{\sqrt{n}}{n+10}$

3.(1 pt) Match each of the following with the correct statement.
A. The series is absolutely convergent.
C. The series converges, but is not absolutely convergent.
D. The series diverges.

— 1. $\sum_{n=1}^{\infty} \frac{(n+2)!}{4^n n!}$
— 2. $\sum_{n=1}^{\infty} \frac{(-1)^n 7^{n-1}}{(7)^{n+1} n^{\frac{1}{3}}}$
— 3. $\sum_{n=1}^{\infty} (-1)^n \frac{n!}{6^n}$
— 4. $\sum_{n=1}^{\infty} \frac{n^3}{3^n}$
— 5. $\sum_{n=1}^{\infty} \frac{(-1)^n}{7^n n!}$

4.(1 pt) Match each of the following with the correct statement.
A. The series is absolutely convergent.
C. The series converges, but is not absolutely convergent.
D. The series diverges.

— 1. $\sum_{n=1}^{\infty} \frac{(n+2)!}{9^n n!}$
— 2. $\sum_{n=1}^{\infty} (-1)^n \frac{n!}{2^n}$
— 3. $\sum_{n=1}^{\infty} \frac{n^6}{3^n}$
— 4. $\sum_{n=1}^{\infty} \frac{(-1)^n 4^{n-1}}{(4)^{n+1} n^{\frac{1}{3}}}$
— 5. $\sum_{n=1}^{\infty} \frac{(-1)^n}{2^n n!}$

5.(1 pt) Match each of the following with the correct statement.
A. The series is absolutely convergent.
C. The series converges, but is not absolutely convergent.
D. The series diverges.

— 1. $\sum_{n=1}^{\infty} \frac{\sin(3n)}{n^5}$
— 2. $\sum_{n=1}^{\infty} \frac{(-1)^{n+1}}{4n+6}$
— 3. $\sum_{n=1}^{\infty} \frac{(n+4)!}{n!2^n}$
— 4. $\sum_{n=1}^{\infty} \frac{(-7)^n}{n^4}$
— 5. $\sum_{n=1}^{\infty} (-1)^{n+1} \frac{(10+n)4^n}{(n^2)4^{2n}}$

6.(1 pt) Match each of the following with the correct statement.
A. The series is absolutely convergent.
C. The series converges, but is not absolutely convergent.
D. The series diverges.

— 1. $\sum_{n=1}^{\infty} \frac{(n+2)!}{n!2^n}$
— 2. $\sum_{n=1}^{\infty} \frac{(-1)^{n+1}}{8n+1}$
— 3. $\sum_{n=1}^{\infty} \frac{(-2)^n}{n^3}$
— 4. $\sum_{n=1}^{\infty} (-1)^{n+1} \frac{(9+n)4^n}{(n^2)5^{2n}}$
— 5. $\sum_{n=1}^{\infty} \frac{\sin(2n)}{n^5}$

7.(1 pt) Match each of the following with the correct statement.

A. The series is absolutely convergent.
C. The series converges, but is not absolutely convergent.
D. The series diverges.

— 1. $\sum_{n=1}^{\infty} (-1)^{n+1} \frac{(2+n)4^n}{(n^2)4^{2n}}$

— 2. $\sum_{n=1}^{\infty} \frac{(n+1)^n}{7^{n^2}}$

— 3. $\sum_{n=1}^{\infty} (-1)^n n^{-2} \ln(n+2)$

— 4. $\sum_{n=1}^{\infty} \frac{(-4n)^n}{n^{2n}}$

— 5. $\sum_{n=1}^{\infty} \frac{(n+1)^n}{7^n}$

— 6. $\sum_{n=1}^{\infty} \left(\frac{n^7}{6-10n^4} \right)^n$

8.(1 pt) Consider the series $\sum_{n=1}^{\infty} a_n$ where

$$a_n = \frac{7^n}{(3n+1)9^{n+3}}$$

In this problem you must attempt to use the Ratio Test to decide whether the series converges.

Compute

$$L = \lim_{n\to\infty} \left| \frac{a_{n+1}}{a_n} \right|$$

Enter the numerical value of the limit L if it converges, INF if it diverges to infinity, MINF if it diverges to negative infinity, or DIV if it diverges but not to infinity or negative infinity.

$L =$ _____

Which of the following statements is true?

A. The Ratio Test says that the series converges absolutely.
B. The Ratio Test says that the series diverges.
C. The Ratio Test says that the series converges conditionally.
D. The Ratio Test is inconclusive, but the series converges absolutely by another test or tests.
E. The Ratio Test is inconclusive, but the series diverges by another test or tests.
F. The Ratio Test is inconclusive, but the series converges conditionally by another test or tests.

Enter the letter for your choice here: _____

9.(1 pt) Consider the series $\sum_{n=1}^{\infty} a_n$ where

$$a_n = \frac{e^{n-1}\sqrt{n+7}}{(n+5)!}$$

In this problem you must attempt to use the Ratio Test to decide whether the series converges.

Compute

$$L = \lim_{n\to\infty} \left| \frac{a_{n+1}}{a_n} \right|$$

Enter the numerical value of the limit L if it converges, INF if it diverges to infinity, MINF if it diverges to negative infinity, or DIV if it diverges but not to infinity or negative infinity.

$L =$ _____

Which of the following statements is true?

A. The Ratio Test says that the series converges absolutely.
B. The Ratio Test says that the series diverges.
C. The Ratio Test says that the series converges conditionally.
D. The Ratio Test is inconclusive, but the series converges absolutely by another test or tests.
E. The Ratio Test is inconclusive, but the series diverges by another test or tests.
F. The Ratio Test is inconclusive, but the series converges conditionally by another test or tests.

Enter the letter for your choice here: _____

10.(1 pt) Consider the series $\sum_{n=1}^{\infty} a_n$ where

$$a_n = \frac{(-1)^n n}{n^2+5n-3}$$

In this problem you must attempt to use the Ratio Test to decide whether the series converges.

Compute

$$L = \lim_{n\to\infty} \left| \frac{a_{n+1}}{a_n} \right|$$

Enter the numerical value of the limit L if it converges, INF if it diverges to infinity, MINF if it diverges to negative infinity, or DIV if it diverges but not to infinity or negative infinity.

$L =$ _____

Which of the following statements is true?

A. The Ratio Test says that the series converges absolutely.
B. The Ratio Test says that the series diverges.
C. The Ratio Test says that the series converges conditionally.
D. The Ratio Test is inconclusive, but the series converges absolutely by another test or tests.
E. The Ratio Test is inconclusive, but the series diverges by another test or tests.
F. The Ratio Test is inconclusive, but the series converges conditionally by another test or tests.

Enter the letter for your choice here: _____

11.(1 pt) Consider the series $\sum_{n=1}^{\infty} a_n$ where

$$a_n = \frac{(-4n-6)^n}{(-3n-5)^{2n}}$$

In this problem you must attempt to use the Root Test to decide whether the series converges.

Compute

$$L = \lim_{n\to\infty} \sqrt[n]{|a_n|}$$

Enter the numerical value of the limit L if it converges, INF if it diverges to infinity, MINF if it diverges to negative infinity, or DIV if it diverges but not to infinity or negative infinity.

$L =$ _____

Which of the following statements is true?

A. The Root Test says that the series converges absolutely.
B. The Root Test says that the series diverges.
C. The Root Test says that the series converges conditionally.
D. The Root Test is inconclusive, but the series converges absolutely by another test or tests.
E. The Root Test is inconclusive, but the series diverges by another test or tests.
F. The Root Test is inconclusive, but the series converges conditionally by another test or tests.

Enter the letter for your choice here: _____

12.(1 pt) Consider the series $\sum_{n=1}^{\infty} a_n$ where

$$a_n = (-1)^n (\frac{\ln(n)}{n})^n$$

In this problem you must attempt to use the Root Test to decide whether the series converges.

Compute

$$L = \lim_{n\to\infty} \sqrt[n]{|a_n|}$$

Enter the numerical value of the limit L if it converges, INF if it diverges to infinity, MINF if it diverges to negative infinity, or DIV if it diverges but not to infinity or negative infinity.

$L =$ _____

Which of the following statements is true?

A. The Root Test says that the series converges absolutely.
B. The Root Test says that the series diverges.
C. The Root Test says that the series converges conditionally.
D. The Root Test is inconclusive, but the series converges absolutely by another test or tests.
E. The Root Test is inconclusive, but the series diverges by another test or tests.
F. The Root Test is inconclusive, but the series converges conditionally by another test or tests.

Enter the letter for your choice here: _____