بسم الله الرحمن الرحيم

- **الرجاء كتابة أسمُك و رقمك الجامعي في المكان المخصص اسفل هذه الصفحة.**

- **تأكد من حصولك على جميع الأسئلة.**

- **يحتوي هذا الإختبار على خمسة عشر سؤالاً.**

- **الزمن المحدد لهذا الإختبار ٢٥ دقيقة.**

- **استخدم الجدول المعطى للإجابات.**

- **بالتوفيق إن شاء الله.**

The answers table:

Questions	Answers				Points	Score
1	A	B	C	D	1	
2	A	B	C	D	1	
3	A	B	C	D	1	
4	A	B	C	D	1	
5	A	B	C	D	1	
6	A	B	C	D	1	
7	A	B	C	D	1	
8	A	B	C	D	1	
9	A	B	C	D	1	
10	A	B	C	D	1	
11	A	B	C	D	1	
12	A	B	C	D	1	
13	A	B	C	D	1	
14	A	B	C	D	1	
15	A	B	C	D	1	
	Total				15	

Name : _____

Student's I.N.: _____

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1. The sequence $\left\{ \dfrac{2^n}{5^n + n} \right\}_{n=1}^{\infty}$ is

   A. Convergent to 0

   B. Convergent to $\ln 2$

   C. Convergent to $\ln 5$

   D. Divergent

2. The sequence $\left\{ \dfrac{\tan^{-1} n}{n^2} \right\}_{n=1}^{\infty}$

   A. Diverges

   B. Converges to $\dfrac{\pi}{2}$

   C. Converges to 0

   D. Converges to $\dfrac{-\pi}{2}$

3. The sequence $\left\{ 2^n \sin \left(\frac{1}{2^n} \right) \right\}_{n=1}^{\infty}$

   A. Converges to 1

   B. Converges to 0

   C. Diverges

   D. Converges to $\dfrac{\pi}{6}$

4. The sequence $\{ 1 + (-1)^n \}_{n=1}^{\infty}$ is

   A. Convergent and Increasing

   B. Convergent and Decreasing

   C. Convergent and not monotone

   D. Divergent

5. The sequence $\left\{\dfrac{n^2+n+1}{3n^2-n+2}\right\}_{n=1}^{\infty}$ is

    A. Convergent to 0

    B. Divergent

    C. Convergent to -1

    D. Convergent to $\dfrac{1}{3}$

6. The sequence $\left\{\left(\dfrac{2n+4}{2n+1}\right)^n\right\}_{n=1}^{\infty}$ is

    A. Divergent

    B. Convergent to 3

    C. Convergent to e^3

    D. Convergent to $\ln 3$

7. The sequence $\left\{\left(\dfrac{4^n}{3^{2n+1}}\right)\right\}_{n=1}^{\infty}$

    A. Converges to 1

    B. Converges to $\dfrac{4}{9}$

    C. Converges to 0

    D. Diverges

8. The sequence $\left\{\ln\left(2n+1\right)-\ln n\right\}_{n=1}^{\infty}$

    A. Converges to $\ln 2$

    B. Converges to 1

    C. Converges to e

    D. Diverges

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9. The sequence $\left\{\ln\left(2n+1\right) - \cosh^{-1} n\right\}_{n=1}^{\infty}$ is

    A. Converges to $\ln 3 - \ln 2$

    B. Converges to $\ln 2$

    C. Diverges

    D. Converges to 0

10. The sequence $\left\{ne^{-n}\right\}_{n=1}^{\infty}$ is

    A. Decreasing

    B. Increasing

    C. Not increasing nor decreasing

    D. Increasing and Decreasing

11. The sequence $\left\{\dfrac{n^2(n+1)!}{(n+2)!}\right\}_{n=1}^{\infty}$ is

    A. Divergent

    B. Decreasing

    C. Convergent to 1

    D. Convergent to 0

12. The sequence $\left\{\dfrac{3^n + n + 1}{4^n + 1}\right\}_{n=1}^{\infty}$ is

    A. Convergent to $\frac{3}{4}$

    B. Convergent to 1

    C. Divergent

    D. Convergent to 0

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13. The sequence $\left\{ \cos\left(\dfrac{1}{n}\right) \right\}_{n=1}^{\infty}$ is

    A. Increasing

    B. Decreasing

    C. Not monotone

    D. Divergent

14. The sequence $\{\tanh n\}_{n=1}^{\infty}$ is

    A. Divergent

    B. Convergent to 1

    C. Convergent to $\dfrac{\pi}{2}$

    D. Convergent to 0

15. The sequence $\{4\}_{n=1}^{\infty}$ is

    A. Divergent

    B. Convergent to 0

    C. Convergent to 4

    D. Decreasing