EP 5.3.

SERII CU TERMINI DE SEMENE VARIABILE. SERII ALTERNANTE. CRITERIUL LEIBNIZ

I. Să se cerceteze convergența seriilor, iar în cazul seriilor convergente să se calculeze suma cu exactitatea 0,01:

1) $\sum_{n=1}^{\infty}(-1)^n \frac{1}{n!}$,

2) $\sum_{n=1}^{\infty}(-1)^n \frac{3n-1}{2n+1}$,

3) $\sum_{n=1}^{\infty}(-1)^n \frac{n+2}{n^3\sqrt[4]{n+1}}$,

4) $\sum_{n=1}^{\infty}(-1)^n \frac{1}{\sqrt[3]{n+2}}$,

5) $\sum_{n=1}^{\infty}(-1)^n \frac{n+2}{\sqrt{n^2+4}} arctg \frac{\pi}{\sqrt{n}}$,

6) $\sum_{n=1}^{\infty}(-1)^n n^2 \ln\left(\frac{n^2+1}{n^2}\right)$,

7) $\sum_{n=1}^{\infty}(-1)^n \frac{1}{3^n+1}$,

II. Să se cerceteze convergența absolută a seriilor :

1) $\sum_{n=1}^{\infty}(-1)^n \frac{1}{n!(2n+1)}$, ;

2) $\sum_{n=1}^{\infty}\frac{(-1)^n}{(2n)!!}$, ;

3) $\sum_{n=1}^{\infty}\frac{\cos(\pi n)}{3^n(n+1)}$, ;

4) $\sum_{n=1}^{\infty}\frac{\sin\left(\frac{\pi}{2}+\pi n\right)}{n^3}$, ;

5) $\sum_{n=1}^{\infty}\frac{(-1)^n}{(n+1)^n}$, ;

6) $\sum_{n=1}^{\infty}\left(\cos^3 n\cdot \text{arctg}\frac{n+1}{n^3+2}\right)$, ;

7) $\sum_{n=1}^{\infty}\left(n^3\cdot\sin n\cdot e^{-\sqrt{n}}\right)$, ;

8) $\sum_{n=1}^{\infty}\frac{\sin n}{\sqrt[5]{n}}$,

9)) $\sum_{n=1}^{\infty}(-1)^n \frac{\sqrt[3]{n+1}}{\sqrt{n+2}}$, .

10) $\sum_{n=1}^{\infty}(-1)^{\frac{n(n+1}{2}}\frac{1}{\sqrt{n}}$,