CC 08 2ND INTERNAL

ANSWER ALL THE QUESTIONS

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1. The Fourier series of the following function f(x) defined on $\left[-\frac{1}{2},\frac{1}{2}\right]$ where $f(x)=\begin{cases}x-[x]-\frac{1}{2} & ,\ if\ x\ is\ not\ an\ integer\\ 0 & ,otherwise\end{cases}$, [x] being the greatest integer not exceeding x is

a) $\sum_{n=1}^{\infty}\frac{\sin(2n\pi x)}{n\pi}$ b) $-\sum_{n=1}^{\infty}\frac{\sin(2n\pi x)}{n\pi}$

c) $\sum_{n=1}^{\infty}\frac{\cos(2n\pi x)}{n\pi}$ d) $-\sum_{n=1}^{\infty}\frac{\cos(2n\pi x)}{n\pi}$

- a
- b
- c
- d

2. The limit of a sequence of function f is given by $f(x)=\begin{cases}0,-1<x<1\\ 1,x=0\end{cases}$. The sequence $\{f_n\}$ converges pointwise on

a) [-1,1] b) (-1,1] c) (-1,1) d) [-1,1)

- a
- b
- c
- d

3. The sequence $\left\{\frac{\sin \pi x}{\sqrt{n}}\right\}$ is uniform convergent on

a) $[0,2\pi]$ b) $(0,2\pi)$ c) $(0,2\pi]$ d) $[0,2\pi)$

- a
- b
- c
- d

4. A bounded function f is R-integrable in [a,b] if the set of its points of discontinuity is

a) Infinite b) finite c) oscillatory d) none of these

- a
- b
- c
- d

5. If f is R-integrable on [a,b], then

a) $\left|\int_a^b f(x)dx\right| = \int_a^b |f(x)|dx$ b) $\left|\int_a^b f(x)dx\right| \geq \int_a^b |f(x)|dx$

c) $\left|\int_a^b f(x)dx\right| = -\int_a^b |f(x)|dx$ d) $\left|\int_a^b f(x)dx\right| \leq \int_a^b |f(x)|dx$

- a

- b
- c
- d

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