

CC 08 3RD INTERNAL

ANSWER ALL THE FOLLOWING QUESTIONS..

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1. The series $\sum \frac{(-1)^{n-1}}{n\sqrt{n}}$ is

- a) convergent but not absolutely convergent
- b) not convergent
- c) convergent and absolutely convergent
- d) none of these

- a
- b
- c
- d

2. For the series $\sum_{n=1}^{\infty} \frac{n^5+1}{n^7+3} \left(\frac{x}{3}\right)^n$, which statement is correct?

- a) The series convergent absolutely but not uniformly on $[-3,3]$
- b) The series convergent uniformly but not absolutely on $[-3,3]$
- c) The series convergent uniformly and absolutely on $[-3,3]$
- d) none of these

- a
- b
- c
- d



3. The series $\frac{1}{(1+a)^p} - \frac{1}{(2+a)^p} + \frac{1}{(3+a)^p} - \dots$; $a > 0$ is

- a) absolutely convergent if $p > 1$, conditionally convergent if $0 < p \leq 1$
- b) absolutely convergent if $0 < p \leq 1$, conditionally convergent if $p > 1$
- c) absolutely convergent if $p \geq 1$, conditionally convergent if $0 < p \leq 1$
- d) none of these.

a

b

c

d

4) Which statement is incorrect?

- a) every continuous function is integrable
- b) every integrable function is continuous
- c) every monotone function is integrable
- d) every continuous function has a primitive

a

b

c

d



5) Consider the function $f(x) = \begin{cases} \sqrt{1-x^2}, & \text{when } x \text{ is rational} \\ 1-x, & \text{when } x \text{ is irrational} \end{cases}$ then the value of $\int_0^1 f(x) dx$ is

a) $\frac{1}{2}$

b) $\frac{\pi}{2}$

c) $\frac{\pi}{4}$

d) $\frac{3}{2}$

 a b c d

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