

# Math 231 C,D. Midterm 3, April 20, 2014 TEST D KEY

Name: \_\_\_\_\_

Section Code:

**Three points will be deducted if these instructions are not followed.**

1. Write your full name legibly above.
2. Complete your section code correctly in the boxes above.
3. Code your name and netid correctly on the scantron form.
4. When the exam begins, find your test form on the next page. Code the correct test form on the scantron form.

CDC – WF 10:00-10:50 -Instructor: Vellis, Vyron  
 CDD – WF 11:00-11:50 -Instructor: Menezes, Glen  
 CDE – WF 12:00-12:50 -Instructor: Mastroeni, Matthew  
 CDF – WF 1:00-1:50 -Instructor: Butler, Stacey  
 CDG – WF 2:00-2:50 -Instructor: Butler, Stacey  
 CDH – WF 3:00-3:50 -Instructor: Mastroeni, Matthew  
 CDA – WF 8:00-8:50 -Instructor: Orlow, Nathan  
 CDJ – WF 11:00-11:50 -Instructor: Orlow, Nathan  
 DDG – WF 2:00-2:50 -Instructor: Jang, Donghoon  
 DDH – WF 3:00-3:50 -Instructor: Golze, Hiram  
 DDA – WF 8:00-8:50 -Instructor: Ahmed, Iftikhar  
 DDF – WF 1:00-1:50 -Instructor: Vellis, Vyron  
 DDD – WF 11:00-11:50 -Instructor: Heersink, Byron  
 DDC – WF 10:00-10:50 -Instructor: Heersink, Byron  
 DDE – WF 12:00-12:50 -Instructor: Golze, Hiram

- The 15 multiple choice answers must be marked on scantron form.
- You must not communicate with other students during this test.
- No written materials of any kind allowed.
- No phones, calculators, iPods or electronic devices of any kind are allowed for ANY reason, including checking the time (you may use a simple wristwatch).
- Do not turn this page until instructed to.
- There are many different versions of this exam.

Violations of academic integrity (in other words, cheating) will be taken extremely seriously, and will be handled under the procedures of Article 1, Part 4 of the student code.

### Free response scores—for graders only

1	2	3	4	Total
16 points	16 points	16 points	14 points	62

Multiple choice. Mark answers on scantron form.

Your test form is D. Code this on the scantron form now.

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Consider the series  $\sum_{n=1}^{\infty} (-1)^n \frac{n^3}{n^4 + 100}$ .

Mark each of the following **True** or **False**. (2 points each)

1. The series converges absolutely.
2.  The series converges conditionally.
3.  The ratio test is inconclusive.

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Consider the series  $\sum_{n=0}^{\infty} \frac{(-6)^n}{(n+7)!}$ .

Mark each of the following **True** or **False**. (2 points each)

4.  The series converges.
5.  The series converges absolutely.
6. The ratio test is inconclusive.
7.  The series converges by the ratio test.

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8. (5 points) Which is the correct definition of the Taylor series of  $g(x)$  centered at  $b$ ?

(A)  $\sum_{n=0}^{\infty} \frac{g^{(n)}(x)}{n!} (x - b)^n$

(B)  $\sum_{n=0}^{\infty} \frac{g^{(n)}(b)}{n!} (x - b)^n$

(C)  $\sum_{n=1}^{\infty} \frac{g^{(n)}(b)}{n!} (x - b)^n$

(D)  $\sum_{n=0}^{\infty} \frac{g^{(n)}(0)}{n!} (x - b)^n$

(E)  $\sum_{n=1}^{\infty} \frac{g^{(n)}(x)}{n!} (x - b)^n$

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Suppose that the power series  $\sum_{n=0}^{\infty} c_n x^n$  converges when  $x = -2$  and diverges when  $x = 4$ .

What can be said about the following series? (3 points each)

9.  $\sum_{n=0}^{\infty} c_n (-4)^n$

(A) Converges.

(B) Diverges.

(C) Impossible to determine with the information given.

10.  $\sum_{n=0}^{\infty} c_n (1.2)^n$

(A) Converges.

(B) Diverges.

(C) Impossible to determine with the information given.

11.  $\sum_{n=0}^{\infty} c_n 5^n$

(A) Converges.

(B) Diverges.

(C) Impossible to determine with the information given.

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