UNIVERSITY OF CALGARY

UNIVERSITY OF CALGARY
FACULTY OF SCIENCE
DEPARTMENT OF MATHEMATICS AND STATISTICS
MATH 277 MIDTERM TEST – ALL LECTURES
Winter 2016

DATE: 11/03 **Time: 90 Minutes**

Student ID Number:	Last Name:	Other Names:	Lecture Section
10023456	**Smith**	**John William**	**L 04**

EXAMINATION RULES

1. This is a closed book examination.
2. No aids are allowed for this examination.
3. **RECORD your answers in the SCANTRON SHEET , using a Number 2 HB Pencil , and filling in the appropriate circles.**
   Make no stray marks on the scantron sheet; they may count against you!
4. Scantron sheets must be filled out during the exam time limit. No additional time will be granted to fill in scantron form.
5. The use of personal electronic or communication devices is prohibited.
6. Students late in arriving will not be permitted after one-half hour of the examination time has passed.
7. No student will be permitted to leave the examination room during the first 30 minutes, nor during the last 15 minutes of the examination. Students must stop writing and hand in their exam immediately when time expires.
8. All inquiries and requests must be addressed to the exam supervisor.
9. Students are strictly cautioned against:
   a. communicating to other students;
   b. leaving answer papers exposed to view;
   c. attempting to read other students' examination papers
10. During the examination, if a student becomes ill or receives word of domestic affliction, the student must report to the Invigilator, hand in the unfinished paper and request that it be cancelled. If ill, the student must report immediately to a physician/counselor for a medical note.
11. Once the examination has been handed in for marking, a student cannot request that the examination be cancelled. Retroactive withdrawals from the course will be denied.
12. Failure to comply with these regulations will result in rejection of the examination paper.

EXAM # 75

SAMPLE

1. If $z = \ln(x + y^3)$, then $\frac{\partial^2 z}{\partial y \partial x}$ is equal to :

(A) $-\frac{1}{(x+y^3)^2}$ (B) $-\frac{3}{(x+y)^2}$ (C) 0 (D) $-\frac{3y^2}{(x+y^3)^2}$ (E) $\frac{1}{x} + \frac{3}{y}$

The correct choice is : **D** (Check!)

2. The position vector of a moving particle in space is given by the vector equation

$\vec{r}(t) = (t^2 - 1)\,\vec{i} + (8 - 4t)\,\vec{j} + 4\sqrt{3 - t}\,\vec{k}$. The speed of the particle at $t = 2$ units is given by

(A) $3\vec{i} + 4\vec{k}$ (B) 5 (C) $(4, -4, -2)$ (D) ± 6 (E) 6

The correct choice is : **E** (Check!)

3. The equation $x^2 + y^2 + 1 = z^2$ is an equation of a **Hyperboloid of two Sheets**.

(A) **True** (B) **False**

The statement is : **True** (**Check**!). **The correct choice is** : **A**

4. An equation of the plane tangent to the surface $5x^2 - 2y^2 + 2z = -9$, and which is parallel

to the plane $5x - 4y + z = 2$ is given by :

(A) $x = 1 + 5t, y = 2 - 4t, z = -3 + t$ (B) $10x - 4y + 2 = 0$ (C) $5x - 4y + z = -6$

(D) $x = 5 + t$, $y = -4 + 2t$, $z = 1 - 3t$ (E) $5x - 4y + z = -9$

The correct choice is : **C** (Check!)

5. Given $f(x, y, z) = xy + 3xz + 2yz$. The directional derivative of f at the point $P(1, 1, -1)$

in the direction from $P(1, 1, -1)$ toward the point $Q(3, -1, 0)$ is given by

(A) 3 (B) 1 (C) $(-4, 2, 5)$ (D) $(-\frac{4}{3}, \frac{2}{3}, \frac{5}{3})$ (E) -1

The correct choice is : **B** (Check!)

IMAGINE PRINT

ANSWER SHEET

JULY 2011

INSTRUCTOR

DATE

DO NOT USE PHOTOCOPIED ANSWER SHEETS AS THEY DO NOT SCAN ACCURATELY.

MARKING INSTRUCTIONS

DIRECTIONS
Read each question and its lettered answer. When you have decided which answer is correct, completely blacken the corresponding bubble. Make no stray marks; they may count against you.

SAMPLE

1. CALGARY is
   a. a country
   b. a mountain
   c. an island
   d. a city
   e. a province

(A) (B) (C) ● (E)

STUDENT NUMBER
1 0 0 2 3 4 5 6

If your Student ID Number starts with "00" please include the leading 0's e.g. 00123456

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ADDITIONAL ANSWERS ON BACK