Foundation Program
Math and Computer Department
قسم الرياضيات والحاسب الآلي بالبرنامج التأسيسي

جامعة قطر
QATAR UNIVERSITY

# Math 1 (814011)
# Midterm Exam
## Spring 2006

**Student Name:** **Student Number:**

**Instructor Name:** **Group Number:**

## Instructions:

1. Exam time is **100** minutes.
2. Don't use red pen to answer questions.
3. Calculators and borrowing are not allowed.
4. Mobiles have to be turned off during the exam time.
5. Don't leave any questions answered in pencil in order for you to have the right of regarding them in case of any grading complaints.
6. You have to **show your work** to receive full credit.

----------**Don't write below this line (official use only)**----------

| Question Number | Total Points | Earned Points |
|---|---|---|
| Q1-(a) | 8 | |
| Q1-(b) | 8 | |
| Q1-(c) | 6 | |
| Q2 | 9 | |

| Question Number | Total Points | Earned Points |
|---|---|---|
| Q3 | 6 | |
| Q4 | 14 | |
| Q5 | 12 | |
| Q6 | 9 | |

| Question Number | Total Points | Earned Points |
|---|---|---|
| Q7 | 12 | |
| Q8 | 16 | |

| Midterm Score (100) | Midterm Letter Score |
|---|---|
| | |

**Question (1):** **(2 points each)**

Let A = {0, 1, 4, 7, 10}, B= {a, b, c, d, e} and C = {a, b, 1, 7}

**a)** State **True** or **False:**

**(1)** $C \not\subset A$ ☐ **(2)** $A \cap B \subseteq C$ ☐

**(3)** $7 \in A \cap B$ ☐ **(4)** $d \notin B \cup A$ ☐

**b) Fill in the blank with one of :** $\in, \notin, \subseteq, \not\subset$. **(2 points each)**

(1) 10 ___ $A \cap C$ (2) C ____ $B \cup A$

(3) 1 ____ $B \cup C$ (4) {a, 4} ____ C

(c) **Find**: **(6 points)**

**(1)** $(A \cap C) \cup (B \cap C) =$

**(2)** $(A \cup C) \cap (B \cup C) =$

**(3)** $A \cap C \cap B =$

**Question (2)** **(9 points)**

Let A = $\left\{-1, \frac{-2}{3}, 0, 1.\overline{3}, \sqrt{2}, \frac{10}{2}, \sqrt{16}, 2\pi, \frac{20}{0}\right\}$

Find the following sets:

**(1)** $A \cap Z$(integers) =

**(2)** $A \cap Q$(rational numbers) =

**(3)** $A \cap R$(real numbers) =

**Question (3)** **(3 points each)**

Write each of the following sets in **interval (or set) notation** and **graph** it.

**(1)** The set of real numbers greater than or equal to $-|-5|$.

**(2)** The set of odd natural numbers between $-3$ and $6$.

**Question (4)** **(4+4+6 points)**

(a) **Evaluate** each of the following expressions and **reduce** your answers to the lowest terms.

**(1)** $1\frac{3}{4} \div \frac{21}{18}$

**(2)** $\frac{5}{12} - \frac{7}{6} + \frac{4}{9}$

(b) Rewrite the following fractions by ordering them from **largest to smallest.**

$\frac{5}{6}, \; 2\frac{1}{4}, \; \frac{7}{18}$

**Question (5)** **(4 points each)**

**Perform** each of the following operations –**SHOW** your work

**(1)** $7.03 - 12.035 + 6.72$

**(2)** $9.04 \times 1.05$

**(3)** $0.3648 \div 0.12$

**Question (6)**

**(1)** Write each of the following expressions in **decimal form**. **(3points)**

(a) Twelve tenths _____

(b) Twenty and five thousandths _____

**(2) Round** the following numbers. **(3points)**

(a) $0.995$ to the nearest hundredth $\approx$ _____

(b) $80.739$ to the nearest tenth $\approx$ _____

**(3)** Write the following numbers from **largest to smallest.** **(3points)**

$-2.02, \quad -2.2, \quad -2.002$

**Question (7)** **(3 points each)**

**Convert** each of the following as indicated and **reduce** your answers to lowest terms.

**(1)** $\frac{5}{8}$ into a **decimal.** $\frac{5}{8} =$ .....

**(2)** $1\frac{1}{5}$ into a **percentage.** $1\frac{1}{5} =$ .....

**(3)** $1.25$ into a **ratio.** $1.25 =$ .....

**(4)** $0.25\%$ into a **fraction.** $0.25\% =$ .....

**Question (8)** **(5+5+6 points)**

**Evaluate** each of the following expressions.

**(1)** $25-16\div 4+2\times 3^2 =$

**(2)** $2(9-7)^2-5\left|3^2-2^4\right| =$

**(3)** $\dfrac{4\times 6\div 3-2(-1)^{20}}{3-\left|7-4\times 5+8\ \div 2^3\right|} =$