

**(063) Math 131: Finite Mathematics.Quiz V(8.3, 8.4): May 23, 2007**

**Dr. Latif and Raja Latif and Muhammad Latif and Abdul Latif**

**Contents**

**Marks: 20; Time: 30 Minutes**

**NAME:**.....

**I.D.#:**

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**SERIAL#**

**SECTION #: (check one)Section # 01**

		8 A	10 A	11 A
		1 M	3 M	4 M

**NOTE: SHOW ALL STEPS OF THE SOLUTION.**

**NO CREDIT FOR ANSWERS WITHOUT COMPLETE SOLUTION.** The questions are not in any order of difficulty at all. Only the nonprogrammable calculators are allowed.

Check  $\checkmark$  or circle  $\circ$  very carefully the one correct choice of each question after completing the solution.

Q.1.Set theory and probability.(Marks : 6) . Read each of the following statement very carefully. Then mark TRUE if the statement is always True otherwise mark false?

(a) If  $A \subseteq B$  then  $B^c \subseteq A^c$ ? (Note that  $A^c$  and  $B^c$  are complements of the sets  $A$  and  $B$ , respectively).

(b)  $(A \cup B)^c = A^c \cap B^c$ ?

(c) Toss a coin two times. Then the probability that you get both heads is equal to  $\frac{1}{2}$ .

(d) The probability of throwing a number greater than 4 with a standard die is equal to  $\frac{1}{3}$ .

(e) If  $A$  and  $B$  are events for an experiment, then the events  $A \cap B$  and  $A \cap B^c$  are (disjoint) mutually exclusive.

**Q.2.(Marks : 4)** Sarah is taking an exam. There is a a “multiple choice” section containing 5 multiple-choice questions having 4 possible answers. What is the probability that if Sarah “guesses” she will get all 5

questions correct ?

**ANSWER:**

#	Possible Choice	Check( $\checkmark$ )
A	$\frac{1}{5^4} = \frac{1}{625}$	
B	$\frac{1}{4^5} = \frac{1}{1024}$	
C	$\frac{1}{20}$	
D	$\frac{1}{4(5!)} = \frac{1}{480}$	
E	$\frac{1}{5(4!)} = \frac{1}{120}$	
F	$\frac{(5)(4)}{(5!)(4!)} = \frac{1}{144}$	
G	$\left(\frac{1}{5}\right)^4 \left(\frac{1}{4}\right)^5 = \frac{1}{64 \times 10^4}$	
H	$\frac{1}{20[P(5,4)]} = \frac{1}{100}$	
K	$\frac{1}{5} = 0.20$	
L	$\frac{1}{4} = 0.25$	
M	0.4554	

(N) **None of the Previous Choices is Correct and the correct probability is : = \_\_\_\_\_.**

**Q.3.** (*Marks : 4*) Of a group of 100 students, 33 are taking Math 131 course, 29 are taking Math 132 course, and 26 are taking Math 132 but are not taking Math 131 course. Suppose a student is selected at random. Then find the probability that he is taking neither Math 131 course nor Math 132 course?

#	Possible Choice	Check(√)
<i>A</i>	0.12	
<i>B</i>	0.18	
<i>C</i>	0.28	
<i>D</i>	0.38	
<i>E</i>	0.41	
<i>F</i>	0.59	
<i>G</i>	0.62	
<i>H</i>	0.67	
<i>K</i>	0.64	
<i>L</i>	<i>ZERO</i>	
<i>M</i>	0.71	

(*N*) **None of the Previous Choices is Cor-**

**rect and the correct probability is : = \_\_\_\_\_**

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**Q.4.** (*Marks : 3 + 3*). 422TB21. Committee Selection. From a group of two women and three men, two persons are selected at random to form a committee.

(*a*) Find the probability that the committee consists of women only.

Probability: = \_\_\_\_\_.

(*b*) Find the probability that the committee consists of a man and a woman.

Probability: = \_\_\_\_\_.