

Name \_\_\_\_\_ ID#: \_\_\_\_\_ Serial #: \_\_\_\_\_

**Instructions.** The quiz is 20 minutes. Write **important steps** to arrive at the solution of the following problems.

1. (6 marks) An urn contains 5 red, 6 blue, 9 green balls. If a set of 3 balls is randomly selected, what is the probability that each of the balls will be different colors?

2. (7 marks) Suppose that a person chooses a letter at random from letters in the word PRESERVE and then chooses one at random from VERTICAL. What is the probability that the same letter is chosen?

3. (7 marks) Prove the following Bonferonni's inequality

$$P(E^C F^C) \geq P(E^C) + P(F^C) - 1.$$