

MATH 131 QUIZTEST VI (071: SPRING 2008) 9.1, 9.2, 16.2, 16.3.

Dr. Raja Mohammad Latif Time: Thirty Minutes Hour, Marks: 25, January 16, 2008.

Name: _____, I.D.# _____

NOTE: 1. The questions are not in any order of difficulty at all.

2. Please provide complete solution for all the problems for full credit.

3. Only nonprogramable calculators are allowed.

4. Any type of mobiles or pagers are not allowed during the examination.

5. Please count that you have exactly 4 questions.

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Section# 07(1pm), 05(10am), 01(8am).(Check One)

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Q.1. 825T16.2B4E. (Marks : 4 + 1). (Employeees' Salaries).

The weekly salaries of 5000 employees of a large corporation are assumed to be normally distributed with mean \$ 630 and standard deviation \$ 54.

How many employees earn less than \$ 580 per week?

Q.2. 493T10.3B26. (Marks : 1 + 1 + 4). (Quality Control)
In a production process, the probability of a defective unit is 0.05.

Suppose a sample of 75 units is selected at random.

Let X be the number of defectives.

(a) Use the Binomial Distribution to answer the following questions:

(i). Find the expected number of defective units.

(ii). Find the variance $\text{Var}(X)$.

(b) Use the NORMAL DISTRIBUTION only to approximate the following Probability.

c. Find $P(X \leq 7)$.

Q.3. 450S8.3M3. (Marks : 2 + 1 + 1 + 2)

(Weather and Attendance) Attendance at a football game in a certain city results in the following pattern.

If it is extremely cold, the attendance will be 30000;

if it is cold, it will be 40000;

if it is moderate, 60000;

and if it is warm, 80000.

If the probabilities for extremely cold, cold, moderate, and warm are 0.07, 0.45, 0.39 and 0.09, respectively.

Answer the following questions:

(a) How many fans are expected to attend the game?

(b) What is the probability that between 65000 and 75000 fans will attend the game?

(c) What is the probability that between 45000 and 55000 fans will not attend the game?

(b) What is the probability that between 35000 and 75000 fans will attend the game?

Q.4. 441S8.2M38. (Marks : 8) (Screening Employees)

To screen prospective employees, a company gives a 12 – question multiple choice test.

Each question has 4 possible answers, of which 1 is correct.

The chance of answering the questions correctly by just guessing is $\frac{1}{4}$ or 25%.

Use the Binomial distribution to find the probability of answering by chance:

(a) Exactly three questions correctly.

(b) No questions correctly.

(c) At least 10 questions correctly.

(d) No more than 6 questions correctly.