

**First Semester 2002/2003
Final Examination**

STAT 105

Question 1

The following table gives the frequency distribution of the number of computers sold during the past 25 weeks at a computer store.

No. of computers sold	Frequency
5-9	3
10-14	5
15-19	9
20-24	5
25-29	3

1. Find the variance.
2. Obtain a cumulative less than frequency distribution.

Question 2

- (a) A multiple-choice question in a test has 4 answers. If a student chooses one answer at random, what is the probability that his answer is:
- (i) correct,
 - (ii) wrong?
- b) A class consists of 15 girls and 5 boys. Find the probability of selecting 2 girls and 1 boy from this class.
- (c) A die is rolled once. What is the probability that a number less than 3 will turn up?

Question 3

- (a) The following table gives the probability distribution of a random variable X .

x	0	1	2	3	4
$f(x)$	0.10	0.20	0.40	0.20	0.10

- Find:
- (i) $P(X \leq 2)$
 - (ii) $P(X > 1)$
 - (iii) $P(1 < X < 4)$
 - (iv) The mean of the random variable.
- (b) If 80% of all students of this university use mobile, what is the probability that out of 4 students 3 will use mobile?

Question 4 [10 marks]

- (a) If $P(A) = 0.40$, $P(B) = 0.50$ and $P(A \cap B) = 0.20$, find
- (i) $P(A \cup B)'$
 - (ii) $P(A' \cap B)$.

(b) Let X be a normal random variable with mean $\mu = 12$ and standard deviation $\sigma = 2$. Find:

1. $P(X \geq 13)$
2. $P(X \leq 14)$
3. $P(10 < X < 15)$

Question 5

The following table shows the sizes (x) of 6 families and the number of cars (y) they have:

x	2	3	5	6	8	12
y	1	1	2	2	3	3

- (a) Fit the least square line $y = a + bx$.
- (b) Predict the number of cars a family of size 10 has