



Mansoura University
Faculty of Engineering
Electronics and communication engineering

Statistics Exam
Date: 4-June- 2013

Answer ALL the following Questions:

1.a. Define the following terms:

- Frequency polygon. (1 Marks)
- Frequency ogive. (1 Marks)
- Frequency histogram (1 Marks)

b. The following are the prices of 28 mobile phones in L.E:

499 279 669 550 207 600 399 100 235 476
249 200 235 489 300 300 299 200 249 366
198 230 573 455 205 569 300 300

- a. Set up a frequency distribution, histogram. (4 Marks)
- b. Construct a cumulative percentage distribution. (3 Marks)
- c. Find the mean, median and mode. (3 Marks)
- d. Determine the standard deviation and coefficient of variation. (2 Marks)

e. Assuming a normally distributed population, test the hypothesis at the 0.05 level of significance that the population mean price for mobile phones was more than 300.

(5 Marks)

2.a An electrical firm manufactures light bulbs that have a length of life that is approximately normally distributed with a mean of 800 hours and a standard deviation of 40 hours. Test the hypothesis that $\mu = 800$ hours against the alternative $\mu \neq 800$ hours if a random sample of 30 bulbs has an average life of 788 hours. Use a 0.04 level of significance.

(5 Marks)

b. For the following grouped data:

Group 1: 23 37 36 39 33 22 31 23 37 40

Group 2: 21 28 30 29 34 33 20 27 39 38

a. Find the mean and standard deviation. (2 Marks).

b. Test the hypothesis at the 0.05 level of significance that $\mu_1 \neq \mu_2$.

(3 Marks)

3.a. What is meant by a test of hypothesis and degree of freedom?

(2 Marks)

b. The grades in a statistics course for a particular year were as follows:

X	A	B	C	D	E
Frequency	28	36	36	23	27

Test the hypothesis at the 0.05 level of significance that the distribution of grades is uniform. (8 Marks)

4. Test the hypothesis that the frequency distribution of battery lives given below may be approximated by the normal distribution:

Class boundaries	1.45-1.95	1.95-2.45	2.45-2.95	2.95-3.45	3.45-3.95	3.95-4.45	4.45-4.95
Frequency	2	1	4	15	10	5	3

(10 Marks)

Good Luck
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