



1st SEM. 2008/2009

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UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

PROGRAMME: BSc. in Agricultural Economics and Agribusiness
Management Year II
BSc. in Agricultural Education Year II
BSc. in Agronomy Year II
BSc. in Animal Science Year II
BSc. in Food Science, Nutrition and Technology Year II
BSc. in Home Economics Year II
BSc. in Home Economics Education Year II
BSc. in Horticulture Year II
BSc. in Land and Water Management Year II
BSc. in Textiles Apparel Design and Management Year II

COURSE CODE: AEM 201

TITLE OF PAPER: Elementary statistics.

TIME ALLOWED: 2:00 Hours

INSTRUCTION: 1. ANSWER ALL QUESTIONS
2. EACH QUESTION CARRIES 25 MARKS.

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Question 1. (25 marks)

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I. Clearly explain what you understand by statistics?

II. Classify each of the following measurements as either **qualitative** or **quantitative**.

- a. The style of a house: split-level, one-story, two-story, other.
- b. Income in dollars.
- c. Temperature of a fluid.
- d. Area of a parcel of land.
- e. Population density (people per acre).
- f. Political office held (e.g., senator, governor, etc.)
- g. the response of a patient to treatment classified as no response, minimal improvement, much improvement, complete recovery.

III. The director of the honor program at western university has 22 applicants for admission next winter.

The score of the applicants are

27 27 27 28 27 25 25 28 20 23 34
26 28 26 28 31 30 26 26 26 35 39

- a) How many classes would you recommend?
- b) What class interval (width) would you suggest?
- c) What lower limit would you recommend for the first class?
- d) Organize the scores in to a frequency distribution

Question 2. (25 marks)

The following distribution gives the number of maize bags produced by farmers in a particular area of Swaziland.

Number of maize Bags produced	Number of Farmers
1 - 10	5
11 - 20	1
21 - 30	3
31 - 40	4
41 - 50	6
51 - 60	3
61 - 70	1
71 - 80	2

Calculate:

- the arithmetic mean,
- the modal value and
- the median value?

Question 3. (25 marks)

- I. Find the a) arithmetic mean
 b) geometric mean.
 c) harmonic mean of the numbers 2,5,6,1.
- II. The following table shows the respective heights X and Y of a sample of 10 fathers and their oldest sons.
- Construct a scatter diagram.
 - Find the least-squares regression line of Y on X.
 - find the coefficient of correlation.
 - find the coefficient of determination.

heights X of father(in)	65	63	67	64	68	62	70	66	68	67
height Y of son(in)	68	66	68	65	69	66	68	65	71	67

Question 4. (25 marks)

- I. A die is rolled once as an experiment,. with $S = \{ 1,2,3,4,5,6 \}$
 Under the assumption that the die is normal,
 find the probabilities of the following events.
- 4
 - An odd number
 - A number less than 1
 - An Odd number and a number less than 4.
- II. Find the probability that in tossing a fair coin five times there will appear
- 3 heads
 - 2 heads and 1 tail
 - 3 tails.
- III. The mean weight of 500 male students at a certain college is 151 lb, and the standard deviation is 15 lb. Assuming that the weights are normally distributed, find how many students weigh between 120 and 155 lb.

IV. choose the best answer.

1. Sampling is inevitable in the situations
 - a. Blood test of a person
 - b. When the population is infinite
 - c. Testing of life of dry battery calls
 - d. All the above.

2. If each and every unit of population has equal chance of being included in the sample, it is known as
 - a. Restricted sampling
 - b. purposive sampling
 - c. Simple random sampling
 - d. None of the above.

3. Simple random sample can be drawn with the help of
 - a. Slip method
 - b. Random number table
 - c. calculator
 - d. All the above

4. Five establishments are to be selected from a list of 50 establishments by systematic random sampling .If the first number is 7, the next one is
 - a. 8
 - b. 16
 - c. 17
 - d. 21.

5. A section procedure of a sample having no involvement of probability is known as
 - a. Purposive sampling
 - b. subjective sampling.
 - c. Judgment sampling
 - d. All the above.

END OF PAPER

Standard Normal Probabilities

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.0000	0.0040	0.0080	0.0120	0.0160	0.0199	0.0239	0.0279	0.0319	0.0359
0.1	0.0398	0.0438	0.0478	0.0517	0.0557	0.0596	0.0636	0.0675	0.0714	0.0753
0.2	0.0793	0.0832	0.0871	0.0910	0.0948	0.0987	0.1026	0.1064	0.1103	0.1141
0.3	0.1179	0.1217	0.1255	0.1293	0.1331	0.1368	0.1406	0.1443	0.1480	0.1517
0.4	0.1554	0.1591	0.1628	0.1664	0.1700	0.1736	0.1772	0.1808	0.1844	0.1879
0.5	0.1915	0.1950	0.1985	0.2019	0.2054	0.2088	0.2123	0.2157	0.2190	0.2224
0.6	0.2257	0.2291	0.2324	0.2357	0.2389	0.2422	0.2454	0.2486	0.2517	0.2549
0.7	0.2580	0.2611	0.2642	0.2673	0.2704	0.2734	0.2764	0.2794	0.2823	0.2852
0.8	0.2881	0.2910	0.2939	0.2967	0.2995	0.3023	0.3051	0.3078	0.3106	0.3133
0.9	0.3159	0.3186	0.3212	0.3238	0.3264	0.3289	0.3315	0.3340	0.3365	0.3389
1.0	0.3413	0.3438	0.3461	0.3485	0.3508	0.3531	0.3554	0.3577	0.3599	0.3621
1.1	0.3643	0.3665	0.3686	0.3708	0.3729	0.3749	0.3770	0.3790	0.3810	0.3830
1.2	0.3849	0.3869	0.3888	0.3907	0.3925	0.3944	0.3962	0.3980	0.3997	0.4015
1.3	0.4032	0.4049	0.4066	0.4082	0.4099	0.4115	0.4131	0.4147	0.4162	0.4177
1.4	0.4192	0.4207	0.4222	0.4236	0.4251	0.4265	0.4279	0.4292	0.4306	0.4319
1.5	0.4332	0.4345	0.4357	0.4370	0.4382	0.4394	0.4406	0.4418	0.4429	0.4441
1.6	0.4452	0.4463	0.4474	0.4484	0.4495	0.4505	0.4515	0.4525	0.4535	0.4545
1.7	0.4554	0.4564	0.4573	0.4582	0.4591	0.4599	0.4608	0.4616	0.4625	0.4633
1.8	0.4641	0.4649	0.4656	0.4664	0.4671	0.4678	0.4686	0.4693	0.4699	0.4706
1.9	0.4713	0.4719	0.4726	0.4732	0.4738	0.4744	0.4750	0.4756	0.4761	0.4767
2.0	0.4772	0.4778	0.4783	0.4788	0.4793	0.4798	0.4803	0.4808	0.4812	0.4817
2.1	0.4821	0.4826	0.4830	0.4834	0.4838	0.4842	0.4846	0.4850	0.4854	0.4857
2.2	0.4861	0.4864	0.4868	0.4871	0.4875	0.4878	0.4881	0.4884	0.4887	0.4890
2.3	0.4893	0.4896	0.4898	0.4901	0.4904	0.4906	0.4909	0.4911	0.4913	0.4916
2.4	0.4918	0.4920	0.4922	0.4925	0.4927	0.4929	0.4931	0.4932	0.4934	0.4936
2.5	0.4938	0.4940	0.4941	0.4943	0.4945	0.4946	0.4948	0.4949	0.4951	0.4952
2.6	0.4953	0.4955	0.4956	0.4957	0.4959	0.4960	0.4961	0.4962	0.4963	0.4964
2.7	0.4965	0.4966	0.4967	0.4968	0.4969	0.4970	0.4971	0.4972	0.4973	0.4974
2.8	0.4974	0.4975	0.4976	0.4977	0.4977	0.4978	0.4979	0.4979	0.4980	0.4981
2.9	0.4981	0.4982	0.4982	0.4983	0.4984	0.4984	0.4985	0.4985	0.4986	0.4986
3.0	0.4987	0.4987	0.4987	0.4988	0.4988	0.4989	0.4989	0.4989	0.4990	0.4990

The values in the table are the areas between zero and the z-score. That is, $P(0 < Z < z\text{-score})$