



PAN AFRICA CHRISTIAN UNIVERSITY
END OF SEMESTER EXAMINATION FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY IN MARRIAGE AND FAMILY
THERAPY
JANUARY-APRIL 2017

CAMPUS: ROYSAMBU

DEPARTMENT: PSYCHOLOGY

COURSE CODE: PMFT111

COURSE TITLE: STATISTICS I

EXAMINATION DATE: TUESDAY 4th APRIL 2017

TIME: 5.30PM-8.30PM

INSTRUCTIONS

- This exam script has **FIVE (5)** questions.
- Read all questions carefully before attempting.
- Answer any FOUR Questions out of the FIVE provided
- Write your **student number** on the answer booklet provided.

QUESTION ONE

- a) Discuss the differences between statistics as numerical facts and statistics as a discipline or a field of study. **(10marks)**
- b) A PhD student is preparing a research instrument and is interested in some key characteristics of the respondent as follows:
- i) Age in years
 - ii) Gender
 - iii) Marital status
 - iv) Level of education
 - v) Health status

Explain the nature of each of the variables and indicate the measurement scale appropriate for each. **(10 Marks)**

- c) The following information was gathered on the distribution of members of a church congregation by marital status:

Married	320
Single	125
Widowed	92
Separated	50
Divorced	36
Others	5
Total	628

Explain two diagrams one could use to present the above information appropriately. **(5 Marks)**

QUESTION TWO

The following is a record of the ages in years of 100 widows in a church membership:

65	57	57	55	20	54	52	49	58	52
86	39	50	48	83	71	66	54	51	27
30	44	34	78	36	63	67	55	40	56
63	75	55	15	96	51	54	52	53	42
50	25	85	27	75	40	37	46	42	86
16	45	12	79	50	46	46	59	57	50
56	74	50	68	52	61	40	38	57	31
35	93	54	26	67	62	51	52	54	61
93	84	28	66	62	57	45	43	47	33
45	25	77	80	91	67	53	55	51	36

- a) Prepare a grouped frequency distribution for the widows' ages. **(10 Marks)**
- b) Plot a histogram from the frequency distribution above. **(10 Marks)**
- c) From the histogram above (b) what would be the approximate mode age? **(5 Marks)**

QUESTION THREE

A concern has been raised about the number of teenagers that are exposed to sex by the age of 15 years. A sample of 50 teenagers revealed the following results on the number of times in a year they engaged in sex:

No. of times engaged in sex	No. of teenagers
0-10	5
10-20	10
20-30	15
30-40	18
40-50	2

Compute the relevant measures of:

- a) Central tendency **(10 Marks)**
- b) Dispersion **(10 Marks)**
- c) Interpret your results **(5 Marks)**

QUESTION FOUR

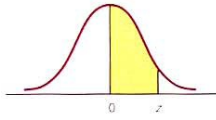
Domestic violence is a vice that has taken root in our society. As a PhD student you are asked to help establish the extent to which the vice is entrenched.

- a) Describe the statistical process that you would follow to achieve the study objective. **(15 marks)**
- b) Suppose you establish that generally 10 percent of families live with domestic violence. If a sample of 15 families is selected in the society;
 - i. What is the probability that three families live with domestic violence? **(3 Marks)**
 - ii. What is the probability that at most three families live with domestic violence **(4 Marks)**
 - iii. What is the average number of families that live with domestic violence in the sample? **(3 Marks)**

QUESTION FIVE

- a) Highlight five characteristics of a normal distribution **(5 marks)**
- b) Assume that the test scores from a college admissions test are normally distributed with a mean of 450 and a standard deviation of 100.
 - i. What is the percentage of the people taking the test score between 400 and 500? **(5 marks)**
 - ii. Suppose someone received a score of 630. Would you say the mark is unusually high? Explain your answer **(5 marks)**
 - iii. If a particular university will not admit anyone scoring below 480, what percentage of the persons taking the test would be acceptable to the university? **(5 marks)**
 - iv. If the college awards the highest 10% a scholarship, what mark must one score to qualify for the scholarship? **(5 marks)**

Table 3 Normal Probabilities



z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.0000	.0040	.0080	.0120	.0160	.0199	.0239	.0279	.0319	.0359
0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
0.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2517	.2549
0.7	.2580	.2611	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4979	.4980	.4981
2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.4987	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990

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