



PAN AFRICA CHRISTIAN UNIVERSITY

SCHOOL OF HUMANITIES AND SOCIAL SCIENCES

END OF SEMESTER EXAMINATION FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY IN MARRIAGE AND FAMILY

THERAPY

JANUARY – APRIL 2018 SEMESTER

CAMPUS: ROYSAMBU

DEPARTMENT: PSYCHOLOGY

COURSE CODE: PMFT111

COURSE TITLE: STATISTICS I

EXAM DATE: MONDAY 16th APRIL 2018

TIME: 5:30PM-8:30PM

INSTRUCTIONS

- Read the instructions and questions carefully before you write the answers.
- Write your **STUDENT NUMBER** in the Answer Booklet given
- This paper has Five questions
- **Answer Question One and any other Three Questions.**

QUESTION ONE: COMPULSORY

- a) Discuss the meaning of the term “Statistics”. **(10 Marks)**
- 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) Respondent’s 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 any one method 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 stem- and – leaf diagram to present the above information **(10 Marks)**
- b) For class intervals of 10 beginning from 10 – 20, prepare a frequency distribution for the above data **(10 Marks)**
- c) Plot a histogram from the distribution in (b) above and use it to estimate the 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

- a) Compute the relevant measures of central tendency and dispersion and interpret your results. **(20 Marks)**
- b) From the measures of central tendency, what would you comment about the skewness of the data? **(5 Marks)**

QUESTION FOUR

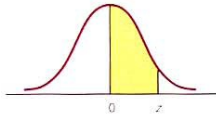
Domestic violence is a vice that has taken root in our society. As a PhD student you are asked to help establish the extent to which the vice is entrenched.

- 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? **(3Marks)**
 - 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 the 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 percentage of the people taking the test score between 400 and 500? **(5 marks)**
 - ii. Suppose someone receive 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

SOURCE: Abridged from Table 1 of A. Hald, *Statistical Tables and Formulas* (New York: Wiley & Sons, Inc.), 1952. Reproduced by permission of A. Hald and the publisher, John Wiley & Sons, Inc.