THE OPEN UNIVERSITY OF SRI LANKA
FACULTY OF MANAGEMENT STUDIES
BACHELOR OF MANAGEMENT STUDIES (HONOURS) DEGREE PROGRAMME
OSU4570: BUSINESS STATISTICS
CONTINUOUS ASSIGNMENT TEST - 2023/24
DURATION: TWO (02) HOURS

DATE: 24th March 2024	**TIME: 1.30 p.m. – 3.30 p.m.**

INSTRUCTIONS:

- **Answer FOUR questions ONLY.**
- **All questions carry equal marks.**
- **Non-programmable calculators are allowed.**
- **Show all related workings.**
- **This question paper carries 5 questions in 7 pages.**

Question 1

a. A website has an average click-through rate (CTR) of 10%. If the website is visited by 9 users per minute, what is the probability that less than 5 users click on an advertisement? (6 marks)

b. A restaurant receives an average of 4 customer complaints per week. What is the probability that the restaurant receives less than 3 complaints next week? (6 marks)

c. The scores on a term test follow a Normal distribution with a mean of 50 and a standard deviation of 10. What is the probability that a randomly selected student scores above 60 on the test? (6 marks)

d. A company conducts a customer satisfaction survey, and each customer has a 70% probability of being satisfied with the company's products and services. If the company surveys 200 customers, what is the probability that at least 140 of them are satisfied? (Use Normal approximation to Binomial distribution) (7 marks)

(Total 25 marks)

Question 2

a. An online retailer wants to estimate the average delivery time for its products with 90% confidence level. A random sample of 50 recent orders is selected, and the delivery times (in days) are recorded. The sample mean delivery time is 3.5 days, and the sample standard

deviation is 0.8 days. Calculate the 90% confidence interval for the population mean delivery time. (8 marks)

b. A pharmaceutical company is conducting a clinical trial to test a new medication. The company wants to estimate the mean decrease in blood pressure after taking the medication with a margin of error of 2 mmHg at a 99% confidence level. The standard deviation of blood pressure readings is known to be 8 mmHg. How large of a sample size should the company select? (8 marks)

c. Explain the relationship between confidence intervals and hypothesis testing. How are these two concepts related in drawing conclusions from data? Provide examples of real-life business scenarios where both confidence intervals and hypothesis testing are used together to analyze and interpret data. (9 marks)

(Total 25 marks)

Question 3

a. A software company claims that 80% of its customers are satisfied with its customer support services. To test this claim, a random sample of 200 customers is selected, and it is found that 160 of them are satisfied with the customer support received. Conduct a hypothesis test to determine whether there is enough evidence to support the company's claim at a 1% level of significance. (13 marks)

b. Imagine you are an executive working for a retail company that is considering whether to implement a new pricing strategy for its products. The company wants to determine if the new pricing strategy will lead to a significant increase in sales compared to the current strategy. Write a detailed description outlining the process of hypothesis testing that you would undertake to help the company make an informed decision. (12 marks)

(Total 25 marks)

Question 4

a. A retail company is evaluating the effectiveness of two different marketing strategies (Strategy A and Strategy B) to increase sales. The company randomly selects two groups of customers. Group 1 is exposed to Strategy A, and Group 2 is exposed to Strategy B. After one month, the company measures the average amount spent by each group.

Group 1 (Strategy A): Sample size = 50, Sample mean = Rs. 75,000/-, Sample standard deviation = Rs. 10,000/-

Group 2 (Strategy B): Sample size = 60, Sample mean = Rs. 80,000/-, Sample standard deviation = Rs. 12,000/-

Conduct a hypothesis test to determine whether there is a significant difference in the average amount spent by customers exposed to Strategy A compared to those exposed to Strategy B. Use a 1% level of significance. (13 marks)

b. Briefly describe the following: (12 marks)

I. Null and Alternative Hypothesis
II. Type I and Type II Errors

(Total 25 marks)

Question 5

A marketing team wants to analyze the relationship between customer satisfaction levels (high, medium, low) and their preferred method of communication (email, phone, in-person). They collect data from a sample of 400 customers and tabulate the results in a contingency table as follows:

Customer satisfaction levels	Preferred communication methods			Total
	Email	Phone	In-person	
High	60	40	30	130
Medium	48	60	32	140
Low	25	45	60	130
Total	133	145	122	400

Conduct a test to determine whether there is a significant relationship between customer satisfaction levels and preferred communication methods at a 5% level of significance.

(Total 25 marks)

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Appendix

$P(r) = {}^{n}C_r p^r q^{(n-r)}$

$P(x) = \frac{e^{-\lambda}\lambda^x}{x!}$ where, e = 2.718

$x - E < \mu < x + E$ where, $E = Z_{\alpha/2} \frac{\sigma}{\sqrt{n}}$ or $E = t_{\alpha/2} \frac{s}{\sqrt{n}}$

$p - E < p < p + E$ where, $E = Z\sqrt{\frac{p(1-p)}{n}}$

$$\chi^2_{STAT} = \sum_{all\ cells} \frac{(f_o - f_e)^2}{f_e}$$

Binomial Probability Distribution Table

$n = 8$

x	$p = 0.01$	$p = 0.02$	$p = 0.03$	$p = 0.04$	$p = 0.05$	$p = 0.06$	$p = 0.07$	$p = 0.08$	$p = 0.09$	
0	0.9227	0.8508	0.7837	0.7214	0.6634	0.6096	0.5596	0.5132	0.4703	8
1	0.0746	0.1389	0.1939	0.2405	0.2793	0.3113	0.3370	0.3570	0.3721	7
2	0.0026	0.0099	0.0210	0.0351	0.0515	0.0695	0.0888	0.1087	0.1288	6
3	0.0001	0.0004	0.0013	0.0029	0.0054	0.0089	0.0134	0.0189	0.0255	5
4	0.0000	0.0000	0.0001	0.0002	0.0004	0.0007	0.0013	0.0021	0.0031	4
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0002	3
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2
	$p = 0.99$	$p = 0.98$	$p = 0.97$	$p = 0.96$	$p = 0.95$	$p = 0.94$	$p = 0.93$	$p = 0.92$	$p = 0.91$	x

x	$p = 0.10$	$p = 0.15$	$p = 0.20$	$p = 0.25$	$p = 0.30$	$p = 0.35$	$p = 0.40$	$p = 0.45$	$p = 0.50$	
0	0.4305	0.2725	0.1678	0.1001	0.0576	0.0319	0.0168	0.0084	0.0039	8
1	0.3826	0.3847	0.3355	0.2670	0.1977	0.1373	0.0896	0.0548	0.0313	7
2	0.1488	0.2376	0.2936	0.3115	0.2965	0.2587	0.2090	0.1569	0.1094	6
3	0.0331	0.0839	0.1468	0.2076	0.2541	0.2786	0.2787	0.2568	0.2188	5
4	0.0046	0.0185	0.0459	0.0865	0.1361	0.1875	0.2322	0.2627	0.2734	4
5	0.0004	0.0026	0.0092	0.0231	0.0467	0.0808	0.1239	0.1719	0.2188	3
6	0.0000	0.0002	0.0011	0.0038	0.0100	0.0217	0.0413	0.0703	0.1094	2
7	0.0000	0.0000	0.0001	0.0004	0.0012	0.0033	0.0079	0.0164	0.0313	1
8	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0007	0.0017	0.0039	0
	$p = 0.90$	$p = 0.85$	$p = 0.80$	$p = 0.75$	$p = 0.70$	$p = 0.65$	$p = 0.60$	$p = 0.55$	$p = 0.50$	x

$n = 9$

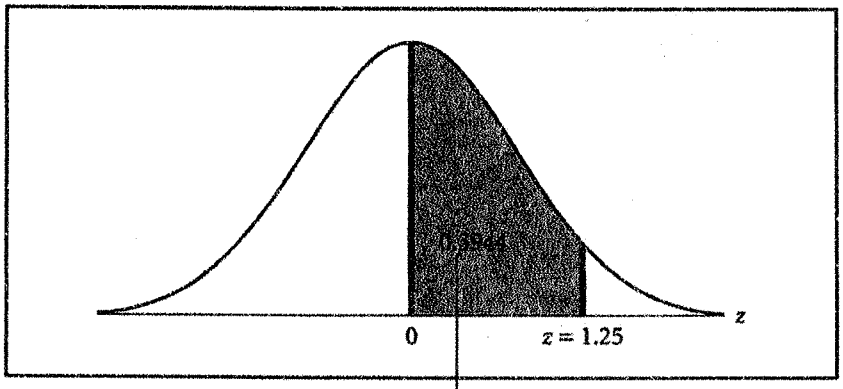
x	$p = 0.01$	$p = 0.02$	$p = 0.03$	$p = 0.04$	$p = 0.05$	$p = 0.06$	$p = 0.07$	$p = 0.08$	$p = 0.09$	
0	0.9135	0.8337	0.7602	0.6925	0.6302	0.5730	0.5204	0.4722	0.4279	9
1	0.0830	0.1531	0.2116	0.2597	0.2985	0.3292	0.3525	0.3695	0.3809	8
2	0.0034	0.0125	0.0262	0.0433	0.0629	0.0840	0.1061	0.1285	0.1507	7
3	0.0001	0.0006	0.0019	0.0042	0.0077	0.0125	0.0186	0.0261	0.0348	6
4	0.0000	0.0000	0.0001	0.0003	0.0006	0.0012	0.0021	0.0034	0.0052	5
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	0.0003	0.0005	4
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2
	$p = 0.99$	$p = 0.98$	$p = 0.97$	$p = 0.96$	$p = 0.95$	$p = 0.94$	$p = 0.93$	$p = 0.92$	$p = 0.91$	x

x	$p = 0.10$	$p = 0.15$	$p = 0.20$	$p = 0.25$	$p = 0.30$	$p = 0.35$	$p = 0.40$	$p = 0.45$	$p = 0.50$	
0	0.3874	0.2316	0.1342	0.0751	0.0404	0.0207	0.0101	0.0046	0.0020	9
1	0.3874	0.3679	0.3020	0.2253	0.1556	0.1004	0.0605	0.0339	0.0176	8
2	0.1722	0.2597	0.3020	0.3003	0.2668	0.2162	0.1612	0.1110	0.0703	7
3	0.0446	0.1069	0.1762	0.2336	0.2668	0.2716	0.2508	0.2119	0.1641	6
4	0.0074	0.0283	0.0661	0.1168	0.1715	0.2194	0.2508	0.2600	0.2461	5
5	0.0008	0.0050	0.0165	0.0389	0.0735	0.1181	0.1672	0.2128	0.2461	4
6	0.0001	0.0006	0.0028	0.0087	0.0210	0.0424	0.0743	0.1160	0.1641	3
7	0.0000	0.0000	0.0003	0.0012	0.0039	0.0098	0.0212	0.0407	0.0703	2
8	0.0000	0.0000	0.0000	0.0001	0.0004	0.0013	0.0035	0.0083	0.0176	1
9	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0003	0.0008	0.0020	0
	$p = 0.90$	$p = 0.85$	$p = 0.80$	$p = 0.75$	$p = 0.70$	$p = 0.65$	$p = 0.60$	$p = 0.55$	$p = 0.50$	x

$n = 10$

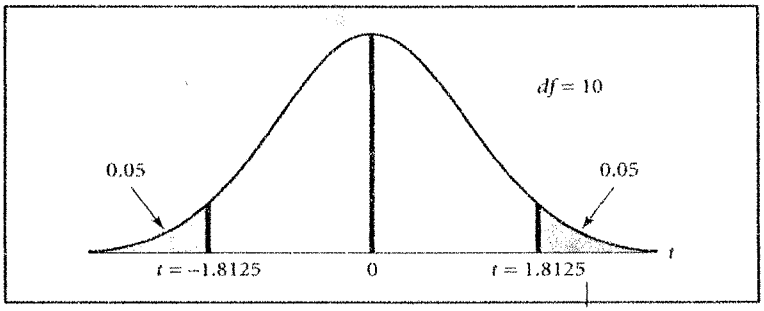
x	$p = 0.01$	$p = 0.02$	$p = 0.03$	$p = 0.04$	$p = 0.05$	$p = 0.06$	$p = 0.07$	$p = 0.08$	$p = 0.09$	
0	0.9044	0.8171	0.7374	0.6648	0.5987	0.5386	0.4840	0.4344	0.3894	10
1	0.0914	0.1667	0.2281	0.2770	0.3151	0.3438	0.3643	0.3777	0.3851	9
2	0.0042	0.0153	0.0317	0.0519	0.0746	0.0988	0.1234	0.1478	0.1714	8
3	0.0001	0.0008	0.0026	0.0058	0.0105	0.0168	0.0248	0.0343	0.0452	7
4	0.0000	0.0000	0.0001	0.0004	0.0010	0.0019	0.0033	0.0052	0.0078	6
5	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0003	0.0005	0.0009	5
6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	4
7	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	3
	$p = 0.99$	$p = 0.98$	$p = 0.97$	$p = 0.96$	$p = 0.95$	$p = 0.94$	$p = 0.93$	$p = 0.92$	$p = 0.91$	x

Standard Normal Distribution Table



z	0	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

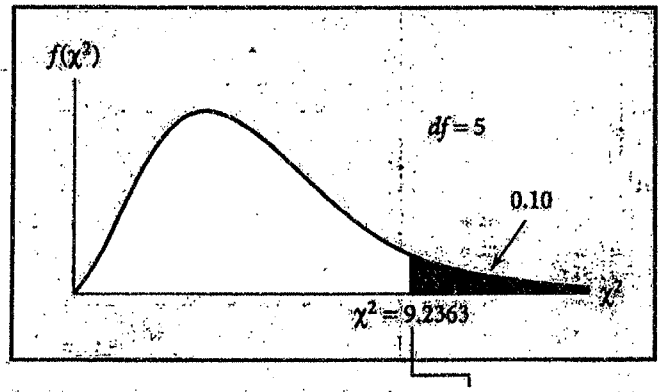
Critical values for t-distribution



PROBABILITES (OR AREAS UNDER *t*-DISTRIBUTION CURVE)

Conf. Level	*0.1*	*0.3*	*0.5*	*0.7*	*0.8*	*0.9*	*0.95*	*0.98*	*0.99*
One Tail	*0.45*	*0.35*	*0.25*	*0.15*	*0.1*	*0.05*	*0.025*	*0.01*	*0.005*
Two Tails	*0.9*	*0.7*	*0.5*	*0.3*	*0.2*	*0.1*	*0.05*	*0.02*	*0.01*
df					*Values of t*				
1	0.1584	0.5095	1.0000	1.9626	3.0777	6.3137	12.7062	31.8210	63.6559
2	0.1421	0.4447	0.8165	1.3862	1.8856	2.9200	4.3027	6.9645	9.9250
3	0.1366	0.4242	0.7649	1.2498	1.6377	2.3534	3.1824	4.5407	5.8408
4	0.1338	0.4142	0.7407	1.1896	1.5332	2.1318	2.7765	3.7469	4.6041
5	0.1322	0.4082	0.7267	1.1558	1.4759	2.0150	2.5706	3.3649	4.0321
6	0.1311	0.4043	0.7176	1.1342	1.4398	1.9432	2.4469	3.1427	3.7074
7	0.1303	0.4015	0.7111	1.1192	1.4149	1.8946	2.3646	2.9979	3.4995
8	0.1297	0.3995	0.7064	1.1081	1.3968	1.8595	2.3060	2.8965	3.3554
9	0.1293	0.3979	0.7027	1.0997	1.3830	1.8331	2.2622	2.8214	3.2498
10	0.1289	0.3966	0.6998	1.0931	1.3722	1.8125	2.2281	2.7638	3.1693
11	0.1286	0.3956	0.6974	1.0877	1.3634	1.7959	2.2010	2.7181	3.1058
12	0.1283	0.3947	0.6955	1.0832	1.3562	1.7823	2.1788	2.6810	3.0545
13	0.1281	0.3940	0.6938	1.0795	1.3502	1.7709	2.1604	2.6503	3.0123
14	0.1280	0.3933	0.6924	1.0763	1.3450	1.7613	2.1448	2.6245	2.9768
15	0.1278	0.3928	0.6912	1.0735	1.3406	1.7531	2.1315	2.6025	2.9467
16	0.1277	0.3923	0.6901	1.0711	1.3368	1.7459	2.1199	2.5835	2.9208
17	0.1276	0.3919	0.6892	1.0690	1.3334	1.7396	2.1098	2.5669	2.8982
18	0.1274	0.3915	0.6884	1.0672	1.3304	1.7341	2.1009	2.5524	2.8784
19	0.1274	0.3912	0.6876	1.0655	1.3277	1.7291	2.0930	2.5395	2.8609
20	0.1273	0.3909	0.6870	1.0640	1.3253	1.7247	2.0860	2.5280	2.8453
21	0.1272	0.3906	0.6864	1.0627	1.3232	1.7207	2.0796	2.5176	2.8314
22	0.1271	0.3904	0.6858	1.0614	1.3212	1.7171	2.0739	2.5083	2.8188
23	0.1271	0.3902	0.6853	1.0603	1.3195	1.7139	2.0687	2.4999	2.8073
24	0.1270	0.3900	0.6848	1.0593	1.3178	1.7109	2.0639	2.4922	2.7970
25	0.1269	0.3898	0.6844	1.0584	1.3163	1.7081	2.0595	2.4851	2.7874
26	0.1269	0.3896	0.6840	1.0575	1.3150	1.7056	2.0555	2.4786	2.7787
27	0.1268	0.3894	0.6837	1.0567	1.3137	1.7033	2.0518	2.4727	2.7707
28	0.1268	0.3893	0.6834	1.0560	1.3125	1.7011	2.0484	2.4671	2.7633
29	0.1268	0.3892	0.6830	1.0553	1.3114	1.6991	2.0452	2.4620	2.7564
30	0.1267	0.3890	0.6828	1.0547	1.3104	1.6973	2.0423	2.4573	2.7500
40	0.1265	0.3881	0.6807	1.0500	1.3031	1.6839	2.0211	2.4233	2.7045
50	0.1263	0.3875	0.6794	1.0473	1.2987	1.6759	2.0086	2.4033	2.6778
60	0.1262	0.3872	0.6786	1.0455	1.2958	1.6706	2.0003	2.3901	2.6603
70	0.1261	0.3869	0.6780	1.0442	1.2938	1.6669	1.9944	2.3808	2.6479
80	0.1261	0.3867	0.6776	1.0432	1.2922	1.6641	1.9901	2.3739	2.6387
90	0.1260	0.3866	0.6772	1.0424	1.2910	1.6620	1.9867	2.3685	2.6316
100	0.1260	0.3864	0.6770	1.0418	1.2901	1.6602	1.9840	2.3642	2.6259
250	0.1258	0.3858	0.6755	1.0386	1.2849	1.6510	1.9695	2.3414	2.5956
500	0.1257	0.3855	0.6750	1.0375	1.2832	1.6479	1.9647	2.3338	2.5857
∞					See Normal Distribution				

Critical Values for Chi-Squared Distribution



PROBABILITIES (OR AREAS UNDER CHI-SQUARE DISTRIBUTION CURVE ABOVE GIVEN CHI-SQUARE VALUES)

	0.995	0.99	0.975	0.95	0.90	0.10	0.05	0.025	0.01	0.005
df						*Values of Chi-Squared*				
1	0.0000	0.0002	0.0010	0.0039	0.0158	2.7055	3.8415	5.0239	6.6349	7.8794
2	0.0100	0.0201	0.0506	0.1026	0.2107	4.6052	5.9915	7.3778	9.2104	10.5965
3	0.0717	0.1148	0.2158	0.3518	0.5844	6.2514	7.8147	9.3484	11.3449	12.8381
4	0.2070	0.2971	0.4844	0.7107	1.0636	7.7794	9.4877	11.1433	13.2767	14.8602
5	0.4118	0.5543	0.8312	1.1455	1.6103	9.2363	11.0705	12.8325	15.0863	16.7496
6	0.6757	0.8721	1.2373	1.6354	2.2041	10.6446	12.5916	14.4494	16.8119	18.5475
7	0.9893	1.2390	1.6899	2.1673	2.8331	12.0170	14.0671	16.0128	18.4753	20.2777
8	1.3444	1.6465	2.1797	2.7326	3.4895	13.3616	15.5073	17.5345	20.0902	21.9549
9	1.7349	2.0879	2.7004	3.3251	4.1682	14.6837	16.9190	19.0228	21.6660	23.5893
10	2.1558	2.5582	3.2470	3.9403	4.8652	15.9872	18.3070	20.4832	23.2093	25.1881
11	2.6032	3.0535	3.8157	4.5748	5.5778	17.2750	19.6752	21.9200	24.7250	26.7569
12	3.0738	3.5706	4.4038	5.2260	6.3038	18.5493	21.0261	23.3367	26.2170	28.2997
13	3.5650	4.1069	5.0087	5.8919	7.0415	19.8119	22.3620	24.7356	27.6882	29.8193
14	4.0747	4.6604	5.6287	6.5706	7.7895	21.0641	23.6848	26.1189	29.1412	31.3194
15	4.6009	5.2294	6.2621	7.2609	8.5468	22.3071	24.9958	27.4884	30.5780	32.8015
16	5.1422	5.8122	6.9077	7.9616	9.3122	23.5418	26.2962	28.8453	31.9999	34.2671
17	5.6973	6.4077	7.5642	8.6718	10.0852	24.7690	27.5871	30.1910	33.4087	35.7184
18	6.2648	7.0149	8.2307	9.3904	10.8649	25.9894	28.8693	31.5264	34.8052	37.1564
19	6.8439	7.6327	8.9065	10.1170	11.6509	27.2036	30.1435	32.8523	36.1908	38.5821
20	7.4338	8.2604	9.5908	10.8508	12.4426	28.4120	31.4104	34.1696	37.5663	39.9969
21	8.0336	8.8972	10.2829	11.5913	13.2396	29.6151	32.6706	35.4789	38.9322	41.4009
22	8.6427	9.5425	10.9823	12.3380	14.0415	30.8133	33.9245	36.7807	40.2894	42.7957
23	9.2604	10.1957	11.6885	13.0905	14.8480	32.0069	35.1725	38.0756	41.6383	44.1814
24	9.8862	10.8563	12.4011	13.8484	15.6587	33.1962	36.4150	39.3641	42.9798	45.5584
25	10.5196	11.5240	13.1197	14.6114	16.4734	34.3816	37.6525	40.6465	44.3140	46.9280
26	11.1602	12.1982	13.8439	15.3792	17.2919	35.5632	38.8851	41.9231	45.6416	48.2898
27	11.8077	12.8785	14.5734	16.1514	18.1139	36.7412	40.1133	43.1945	46.9628	49.6450
28	12.4613	13.5647	15.3079	16.9279	18.9392	37.9159	41.3372	44.4608	48.2782	50.9936
29	13.1211	14.2564	16.0471	17.7084	19.7677	39.0875	42.5569	45.7223	49.5878	52.3355
30	13.7867	14.9535	16.7908	18.4927	20.5992	40.2560	43.7730	46.9792	50.8922	53.6719