University of Swaziland
Department of Accounting
Supplementary Exam Paper - Semester - II

Programme of Study	:	Bachelor of Commerce
Year of Study	:	Year Three / Four
Title of Paper	:	Corporate Finance I
Course Code	:	AC 325/416
Time Allowed	:	**3 Hours.**

Instructions:

1. **Total number of questions on this paper is four (4).**
2. **Answer all the questions.**
3. **The marks awarded for a question / part is indicated at the end of each question / part of question.**
4. **Where applicable, submit all workings and calculations on the answer sheet alongside the case.**
5. **Calculations are to be made to two decimal places of accuracy unless otherwise instructed.**

Note: You are reminded that in assessing your work, account will be taken of accuracy of the language and the general quality of expression, together with the layout and presentation of your final answer.

Special requirement : **Calculator and PV Tables**

This paper is not to be opened until permission has been granted by the invigilator.

QUESTION 1:

a. Mhlanga Industries, Manzini, sells its products to widely dispersed distributors in Swaziland. It currently takes on an average 6 days for cash receipt cheques to become available to the firm from the day they are mailed. The firm is contemplating the institution of concentration banking to reduce this period. It is estimated that such a system would reduce the collection period of receivables by 3 days. The daily cheque receipts currently average E 900,000.
The concentration banking would cost E 150,000 annually and the cost of funds is 12 percent.

Required:

i) Advice Mhlanga whether it should introduce concentration banking system? **(5 marks)**

ii) Is your answer different, if it is estimated that a lock-box system can reduce the collection time by 4 days and its annual cost would be E 250,000? **(5 marks)**

b. Unitrac has the following Statement of Financial Position.

Cash	E 825	Accounts payables	E 475
Accounts receivables	1,650	Notes payables	1,235
Inventory	1,675	Accruals	420
Current assets	4,150	Current liabilities	2,130
Net non-current assets	4,000	Long term debt	3,000
		Common stock	900
		Retained earnings	2,120
Total assets	8,150	Total equity and liabilities	8,150

Unitrac's sales are forecasted to increase from E 8,000 this year to E10,400 next year. Unitrac's non-current assets are being used to only 70 percent of capacity this year, but its current assets were at their proper levels. All assets except non-current assets increase at the same rate as sales and non-current assets would also increase at the same rate if the current excess capacity did not exist. Unitrac's after-tax profit margin is forecasted to be 15 percent, and its payout ratio will be 40 percent.

Required:

i) What is Unitrac's additional funds needed (AFN) for the coming year? Ignore financing feed-back effects. **(15 marks)**

Total (25 marks)

QUESTION 2:

Write short Notes on the following:

a. Techniques for assessing a project's stand-alone risk
b. Revolving credit, Commitment fee
c. Float, Disbursements Float, Collection Float and Net Float
d. Commercial paper
e. Financial Leverage

Total (5*5=25 marks)

QUESTION 3:

a. The MSN Corporation produces teakettles, which it sells for E25 each. Fixed costs are E 1,000,000 for up to 600,000 units of output. Variable costs are E 15 per kettle.

Required:

i) What is the operating Break Even Point? **(2 marks)**

ii) What is MSN's Degree of Operating Leverage at sales of (i) 75,000 units and (ii) 125,000 units? **(4 marks)**

iii) Comment **(2 marks)**

b. Trepak Corporation has current sales of E 25,648,750. Also it has unutilized capacity. In order to boost its sales, it is considering to relaxing its credit policy. The proposed terms of credit will be 60 days against the present policy of 45 days. As a result, the bad debts are expected to increase from 1.5 percent to 2 percent of sales. The Trepak's sales are expected to increase by 10 percent. The variable operating costs are 72 percent of sales. The firm's corporate tax rate is 30 percent, and its required rate of return after tax is 15% on its investment. Should the firm change its credit period? Advice using Net Present Value method.

Note: Assume a 360 day year and round off the decimal digits to the nearest integer. **(17 marks)**

Total (25 marks)

QUESTION 4:

Hancet Inc., Matsapha, is considering two mutually exclusive projects. Both require an investment of E 50,000 each and have a life of 4 years. The company's required rate of return from the investment is 12 percent and pays tax at 30 percent rate. Bothe the projects will be depreciated on straight line basis. The Before-tax Cash-flows expected to be generated by the projects are as follows:

	Before-tax cash-flows (E)			
Year (t)	1	2	3	4
Project A	20,000	20,000	20,000	20,000
Project B	30,000	15,000	10,000	25,000

Required:

i) Find out the relevant cash-flows for Projects A and B **(6 marks)**

ii) Evaluate the projects based on each of the following techniques.

a) Discounted Pay-back Period **(4 marks)**
b) Net Present Value **(6 marks)**
c) Internal Rate of Return **(6 marks)**
(Range: 20% and 24%)

iii) Recommend which machine is better based on each of the above three criterion. **(3 marks)**

Total (25 marks)

END OF QUESTION PAPER

Present Value of $1

Periods (n)	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%
	Interest rate (r)											
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.9009	0.8929
2	0.9803	0.9612	0.9426	0.9246	0.9070	0.8900	0.8734	0.8573	0.8417	0.8264	0.8116	0.7972
3	0.9706	0.9423	0.9151	0.8890	0.8638	0.8396	0.8163	0.7938	0.7722	0.7513	0.7312	0.7118
4	0.9610	0.9238	0.8885	0.8548	0.8227	0.7921	0.7629	0.7350	0.7084	0.6830	0.6587	0.6355
5	0.9515	0.9057	0.8626	0.8219	0.7835	0.7473	0.7130	0.6806	0.6499	0.6209	0.5935	0.5674
6	0.9420	0.8880	0.8375	0.7903	0.7462	0.7050	0.6663	0.6302	0.5963	0.5645	0.5346	0.5066
7	0.9327	0.8706	0.8131	0.7599	0.7107	0.6651	0.6227	0.5835	0.5470	0.5132	0.4817	0.4523
8	0.9235	0.8535	0.7894	0.7307	0.6768	0.6274	0.5820	0.5403	0.5019	0.4665	0.4339	0.4039
9	0.9143	0.8368	0.7664	0.7026	0.6446	0.5919	0.5439	0.5002	0.4604	0.4241	0.3909	0.3606
10	0.9053	0.8203	0.7441	0.6756	0.6139	0.5584	0.5083	0.4632	0.4224	0.3855	0.3522	0.3220
11	0.8963	0.8043	0.7224	0.6496	0.5847	0.5268	0.4751	0.4289	0.3875	0.3505	0.3173	0.2875
12	0.8874	0.7885	0.7014	0.6246	0.5568	0.4970	0.4440	0.3971	0.3555	0.3186	0.2858	0.2567
13	0.8787	0.7730	0.6810	0.6006	0.5303	0.4688	0.4150	0.3677	0.3262	0.2897	0.2575	0.2292
14	0.8700	0.7579	0.6611	0.5775	0.5051	0.4423	0.3878	0.3405	0.2992	0.2633	0.2320	0.2046
15	0.8613	0.7430	0.6419	0.5553	0.4810	0.4173	0.3624	0.3152	0.2745	0.2394	0.2090	0.1827
16	0.8528	0.7284	0.6232	0.5339	0.4581	0.3936	0.3387	0.2919	0.2519	0.2176	0.1883	0.1631
17	0.8444	0.7142	0.6050	0.5134	0.4363	0.3714	0.3166	0.2703	0.2311	0.1978	0.1696	0.1456
18	0.8360	0.7002	0.5874	0.4936	0.4155	0.3503	0.2959	0.2502	0.2120	0.1799	0.1528	0.1300
19	0.8277	0.6864	0.5703	0.4746	0.3957	0.3305	0.2765	0.2317	0.1945	0.1635	0.1377	0.1161
20	0.8195	0.6730	0.5537	0.4564	0.3769	0.3118	0.2584	0.2145	0.1784	0.1486	0.1240	0.1037
21	0.8114	0.6598	0.5375	0.4388	0.3589	0.2942	0.2415	0.1987	0.1637	0.1351	0.1117	0.0926
22	0.8034	0.6468	0.5219	0.4220	0.3418	0.2775	0.2257	0.1839	0.1502	0.1228	0.1007	0.0826
23	0.7954	0.6342	0.5067	0.4057	0.3256	0.2618	0.2109	0.1703	0.1378	0.1117	0.0907	0.0738
24	0.7876	0.6217	0.4919	0.3901	0.3101	0.2470	0.1971	0.1577	0.1264	0.1015	0.0817	0.0659
25	0.7798	0.6095	0.4776	0.3751	0.2953	0.2330	0.1842	0.1460	0.1160	0.0923	0.0736	0.0588
26	0.7720	0.5976	0.4637	0.3607	0.2812	0.2198	0.1722	0.1352	0.1064	0.0839	0.0663	0.0525
27	0.7644	0.5859	0.4502	0.3468	0.2678	0.2074	0.1609	0.1252	0.0976	0.0763	0.0597	0.0469
28	0.7568	0.5744	0.4371	0.3335	0.2551	0.1956	0.1504	0.1159	0.0895	0.0693	0.0538	0.0419
29	0.7493	0.5631	0.4243	0.3207	0.2429	0.1846	0.1406	0.1073	0.0822	0.0630	0.0485	0.0374
30	0.7419	0.5521	0.4120	0.3083	0.2314	0.1741	0.1314	0.0994	0.0754	0.0573	0.0437	0.0334
31	0.7346	0.5412	0.4000	0.2965	0.2204	0.1643	0.1228	0.0920	0.0691	0.0521	0.0394	0.0298
32	0.7273	0.5306	0.3883	0.2851	0.2099	0.1550	0.1147	0.0852	0.0634	0.0474	0.0355	0.0266
33	0.7201	0.5202	0.3770	0.2741	0.1999	0.1462	0.1072	0.0789	0.0582	0.0431	0.0319	0.0238
34	0.7130	0.5100	0.3660	0.2636	0.1904	0.1379	0.1002	0.0730	0.0534	0.0391	0.0288	0.0212
35	0.7059	0.5000	0.3554	0.2534	0.1813	0.1301	0.0937	0.0676	0.0490	0.0356	0.0259	0.0189
36	0.6989	0.4902	0.3450	0.2437	0.1727	0.1227	0.0875	0.0626	0.0449	0.0323	0.0234	0.0169
37	0.6920	0.4806	0.3350	0.2343	0.1644	0.1158	0.0818	0.0580	0.0412	0.0294	0.0210	0.0151
38	0.6852	0.4712	0.3252	0.2253	0.1566	0.1092	0.0765	0.0537	0.0378	0.0267	0.0190	0.0135
39	0.6784	0.4619	0.3158	0.2166	0.1491	0.1031	0.0715	0.0497	0.0347	0.0243	0.0171	0.0120
40	0.6717	0.4529	0.3066	0.2083	0.1420	0.0972	0.0668	0.0460	0.0318	0.0221	0.0154	0.0107

Present Value of $1

Periods (n)	13%	14%	15%	16%	17%	18%	19%	20%	21%	22%	23%	24%
	Interest rate (r)											
1	0.8850	0.8772	0.8696	0.8621	0.8547	0.8475	0.8403	0.8333	0.8264	0.8197	0.8130	0.8065
2	0.7831	0.7695	0.7561	0.7432	0.7305	0.7182	0.7062	0.6944	0.6830	0.6719	0.6610	0.6504
3	0.6931	0.6750	0.6575	0.6407	0.6244	0.6086	0.5934	0.5787	0.5645	0.5507	0.5374	0.5245
4	0.6133	0.5921	0.5718	0.5523	0.5337	0.5158	0.4987	0.4823	0.4665	0.4514	0.4369	0.4230
5	0.5428	0.5194	0.4972	0.4761	0.4561	0.4371	0.4190	0.4019	0.3855	0.3700	0.3552	0.3411
6	0.4803	0.4556	0.4323	0.4104	0.3898	0.3704	0.3521	0.3349	0.3186	0.3033	0.2888	0.2751
7	0.4251	0.3996	0.3759	0.3538	0.3332	0.3139	0.2959	0.2791	0.2633	0.2486	0.2348	0.2218
8	0.3762	0.3506	0.3269	0.3050	0.2848	0.2660	0.2487	0.2326	0.2176	0.2038	0.1909	0.1789
9	0.3329	0.3075	0.2843	0.2630	0.2434	0.2255	0.2090	0.1938	0.1799	0.1670	0.1552	0.1443
10	0.2946	0.2697	0.2472	0.2267	0.2080	0.1911	0.1756	0.1615	0.1486	0.1369	0.1262	0.1164
11	0.2607	0.2366	0.2149	0.1954	0.1778	0.1619	0.1476	0.1346	0.1228	0.1122	0.1026	0.0938
12	0.2307	0.2076	0.1869	0.1685	0.1520	0.1372	0.1240	0.1122	0.1015	0.0920	0.0834	0.0757
13	0.2042	0.1821	0.1625	0.1452	0.1299	0.1163	0.1042	0.0935	0.0839	0.0754	0.0678	0.0610
14	0.1807	0.1597	0.1413	0.1252	0.1110	0.0985	0.0876	0.0779	0.0693	0.0618	0.0551	0.0492
15	0.1599	0.1401	0.1229	0.1079	0.0949	0.0835	0.0736	0.0649	0.0573	0.0507	0.0448	0.0397
16	0.1415	0.1229	0.1069	0.0930	0.0811	0.0708	0.0618	0.0541	0.0474	0.0415	0.0364	0.0320
17	0.1252	0.1078	0.0929	0.0802	0.0693	0.0600	0.0520	0.0451	0.0391	0.0340	0.0296	0.0258
18	0.1108	0.0946	0.0808	0.0691	0.0592	0.0508	0.0437	0.0376	0.0323	0.0279	0.0241	0.0208
19	0.0981	0.0829	0.0703	0.0596	0.0506	0.0431	0.0367	0.0313	0.0267	0.0229	0.0196	0.0168
20	0.0868	0.0728	0.0611	0.0514	0.0433	0.0365	0.0308	0.0261	0.0221	0.0187	0.0159	0.0135
21	0.0768	0.0638	0.0531	0.0443	0.0370	0.0309	0.0259	0.0217	0.0183	0.0154	0.0129	0.0109
22	0.0680	0.0560	0.0462	0.0382	0.0316	0.0262	0.0218	0.0181	0.0151	0.0126	0.0105	0.0088
23	0.0601	0.0491	0.0402	0.0329	0.0270	0.0222	0.0183	0.0151	0.0125	0.0103	0.0086	0.0071
24	0.0532	0.0431	0.0349	0.0284	0.0231	0.0188	0.0154	0.0126	0.0103	0.0085	0.0070	0.0057
25	0.0471	0.0378	0.0304	0.0245	0.0197	0.0160	0.0129	0.0105	0.0085	0.0069	0.0057	0.0046
26	0.0417	0.0331	0.0264	0.0211	0.0169	0.0135	0.0109	0.0087	0.0070	0.0057	0.0046	0.0037
27	0.0369	0.0291	0.0230	0.0182	0.0144	0.0115	0.0091	0.0073	0.0058	0.0047	0.0037	0.0030
28	0.0326	0.0255	0.0200	0.0157	0.0123	0.0097	0.0077	0.0061	0.0048	0.0038	0.0030	0.0024
29	0.0289	0.0224	0.0174	0.0135	0.0105	0.0082	0.0064	0.0051	0.0040	0.0031	0.0025	0.0020
30	0.0256	0.0196	0.0151	0.0116	0.0090	0.0070	0.0054	0.0042	0.0033	0.0026	0.0020	0.0016
31	0.0226	0.0172	0.0131	0.0100	0.0070	0.0059	0.0046	0.0035	0.0027	0.0021	0.0016	0.0013
32	0.0200	0.0151	0.0114	0.0087	0.0066	0.0050	0.0038	0.0029	0.0022	0.0017	0.0013	0.0010
33	0.0177	0.0132	0.0099	0.0075	0.0056	0.0042	0.0032	0.0024	0.0019	0.0014	0.0011	0.0008
34	0.0157	0.0116	0.0086	0.0064	0.0048	0.0036	0.0027	0.0020	0.0015	0.0012	0.0009	0.0007
35	0.0139	0.0102	0.0075	0.0055	0.0041	0.0030	0.0023	0.0017	0.0013	0.0009	0.0007	0.0005
36	0.0123	0.0089	0.0065	0.0048	0.0035	0.0026	0.0019	0.0014	0.0010	0.0008	0.0006	0.0004
37	0.0109	0.0078	0.0057	0.0041	0.0030	0.0022	0.0016	0.0012	0.0009	0.0006	0.0005	0.0003
38	0.0096	0.0069	0.0049	0.0036	0.0026	0.0019	0.0013	0.0010	0.0007	0.0005	0.0004	0.0003
39	0.0085	0.0060	0.0043	0.0031	0.0022	0.0016	0.0011	0.0008	0.0006	0.0004	0.0003	0.0002
40	0.0075	0.0053	0.0037	0.0026	0.0019	0.0013	0.0010	0.0007	0.0005	0.0004	0.0003	0.0002

Present Value of an Annuity of $1

Interest rate (r)

ods (n)	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.9009	0.8929
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.7125	1.6901
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4437	2.4018
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.1024	3.0373
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6959	3.6048
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.2305	4.1114
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.7122	4.5638
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	5.1461	4.9676
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.5370	5.3282
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.8892	5.6502
11	10.3676	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	6.2065	5.9377
12	11.2551	10.5753	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.4924	6.1944
13	12.1337	11.3484	10.6350	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.7499	6.4235
14	13.0037	12.1062	11.2961	10.5631	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.9819	6.6282
15	13.8651	12.8493	11.9379	11.1184	10.3797	9.7122	9.1079	8.5595	8.0607	7.6061	7.1909	6.8109
16	14.7179	13.5777	12.5611	11.6523	10.8378	10.1059	9.4466	8.8514	8.3126	7.8237	7.3792	6.9740
17	15.5623	14.2919	13.1661	12.1657	11.2741	10.4773	9.7632	9.1216	8.5436	8.0216	7.5488	7.1196
18	16.3983	14.9920	13.7535	12.6593	11.6896	10.8276	10.0591	9.3719	8.7556	8.2014	7.7016	7.2497
19	17.2260	15.6785	14.3238	13.1339	12.0853	11.1581	10.3356	9.6036	8.9501	8.3649	7.8393	7.3658
20	18.0456	16.3514	14.8775	13.5903	12.4622	11.4699	10.5940	9.8181	9.1285	8.5136	7.9633	7.4694
21	18.8570	17.0112	15.4150	14.0292	12.8212	11.7641	10.8355	10.0168	9.2922	8.6487	8.0751	7.5620
22	19.6604	17.6580	15.9369	14.4511	13.1630	12.0416	11.0612	10.2007	9.4424	8.7715	8.1757	7.6446
23	20.4558	18.2922	16.4436	14.8568	13.4886	12.3034	11.2722	10.3711	9.5802	8.8832	8.2664	7.7184
24	21.2434	18.9139	16.9355	15.2470	13.7986	12.5504	11.4693	10.5288	9.7066	8.9847	8.3481	7.7843
25	22.0232	19.5235	17.4131	15.6221	14.0939	12.7834	11.6536	10.6748	9.8226	9.0770	8.4217	7.8431
26	22.7952	20.1210	17.8768	15.9828	14.3752	13.0032	11.8258	10.8100	9.9290	9.1609	8.4881	7.8957
27	23.5596	20.7069	18.3270	16.3296	14.6430	13.2105	11.9867	10.9352	10.0266	9.2372	8.5478	7.9426
28	24.3164	21.2813	18.7641	16.6631	14.8981	13.4062	12.1371	11.0511	10.1161	9.3066	8.6016	7.9844
29	25.0658	21.8444	19.1885	16.9837	15.1411	13.5907	12.2777	11.1584	10.1983	9.3696	8.6501	8.0218
30	25.8077	22.3965	19.6004	17.2920	15.3725	13.7648	12.4090	11.2578	10.2737	9.4269	8.6938	8.0552
31	26.5423	22.9377	20.0004	17.5885	15.5928	13.9291	12.5318	11.3498	10.3428	9.4790	8.7331	8.0850
32	27.2696	23.4683	20.3888	17.8736	15.8027	14.0840	12.6466	11.4350	10.4062	9.5264	8.7686	8.1116
33	27.9897	23.9886	20.7658	18.1476	16.0025	14.2302	12.7538	11.5139	10.4644	9.5694	8.8005	8.1354
34	28.7027	24.4986	21.1318	18.4112	16.1929	14.3681	12.8540	11.5869	10.5178	9.6086	8.8293	8.1566
35	29.4086	24.9986	21.4872	18.6646	16.3742	14.4982	12.9477	11.6546	10.5668	9.6442	8.8552	8.1755
36	30.1075	25.4888	21.8323	18.9083	16.5469	14.6210	13.0352	11.7172	10.6118	9.6765	8.8786	8.1924
37	30.7995	25.9695	22.1672	19.1426	16.7113	14.7368	13.1170	11.7752	10.6530	9.7059	8.8996	8.2075
38	31.4847	26.4406	22.4925	19.3679	16.8679	14.8460	13.1935	11.8289	10.6908	9.7327	8.9186	8.2210
39	32.1630	26.9026	22.8082	19.5845	17.0170	14.9491	13.2649	11.8786	10.7255	9.7570	8.9357	8.2330
40	32.8347	27.3555	23.1148	19.7928	17.1591	15.0463	13.3317	11.9246	10.7574	9.7791	8.9511	8.2438

Present Value of an Annuity of $1

Interest rate (r)

Periods (n)	13%	14%	15%	16%	17%	18%	19%	20%	21%	22%	23%	24%
1	0.8850	0.8772	0.8696	0.8621	0.8547	0.8475	0.8403	0.8333	0.8264	0.8197	0.8130	0.8065
2	1.6681	1.6467	1.6257	1.6052	1.5852	1.5656	1.5465	1.5278	1.5095	1.4915	1.4740	1.4568
3	2.3612	2.3216	2.2832	2.2459	2.2096	2.1743	2.1399	2.1065	2.0739	2.0422	2.0114	1.9813
4	2.9745	2.9137	2.8550	2.7982	2.7432	2.6901	2.6386	2.5887	2.5404	2.4936	2.4483	2.4043
5	3.5172	3.4331	3.3522	3.2743	3.1993	3.1272	3.0576	2.9906	2.9260	2.8636	2.8035	2.7454
6	3.9975	3.8887	3.7845	3.6847	3.5892	3.4976	3.4098	3.3255	3.2446	3.1669	3.0923	3.0205
7	4.4226	4.2883	4.1604	4.0386	3.9224	3.8115	3.7057	3.6046	3.5079	3.4155	3.3270	3.2423
8	4.7988	4.6389	4.4873	4.3436	4.2072	4.0776	3.9544	3.8372	3.7256	3.6193	3.5179	3.4212
9	5.1317	4.9464	4.7716	4.6065	4.4506	4.3030	4.1633	4.0310	3.9054	3.7863	3.6731	3.5655
10	5.4262	5.2161	5.0188	4.8332	4.6586	4.4941	4.3389	4.1925	4.0541	3.9232	3.7993	3.6819
11	5.6869	5.4527	5.2337	5.0286	4.8364	4.6560	4.4865	4.3271	4.1769	4.0354	3.9018	3.7757
12	5.9176	5.6603	5.4206	5.1971	4.9884	4.7932	4.6105	4.4392	4.2784	4.1274	3.9852	3.8514
13	6.1218	5.8424	5.5831	5.3423	5.1183	4.9095	4.7147	4.5327	4.3624	4.2028	4.0530	3.9124
14	6.3025	6.0021	5.7245	5.4675	5.2293	5.0081	4.8023	4.6106	4.4317	4.2646	4.1082	3.9616
15	6.4624	6.1422	5.8474	5.5755	5.3242	5.0916	4.8759	4.6755	4.4890	4.3152	4.1530	4.0013
16	6.6039	6.2651	5.9542	5.6685	5.4053	5.1624	4.9377	4.7296	4.5364	4.3567	4.1894	4.0333
17	6.7291	6.3729	6.0472	5.7487	5.4746	5.2223	4.9897	4.7746	4.5755	4.3908	4.2190	4.0591
18	6.8399	6.4674	6.1280	5.8178	5.5339	5.2732	5.0333	4.8122	4.6079	4.4187	4.2431	4.0799
19	6.9380	6.5504	6.1982	5.8775	5.5845	5.3162	5.0700	4.8435	4.6346	4.4415	4.2627	4.0967
20	7.0248	6.6231	6.2593	5.9288	5.6278	5.3527	5.1009	4.8696	4.6567	4.4603	4.2786	4.1103
21	7.1016	6.6870	6.3125	5.9731	5.6648	5.3837	5.1268	4.8913	4.6750	4.4756	4.2916	4.1212
22	7.1695	6.7429	6.3587	6.0113	5.6964	5.4099	5.1486	4.9094	4.6900	4.4882	4.3021	4.1300
23	7.2297	6.7921	6.3988	6.0442	5.7234	5.4321	5.1668	4.9245	4.7025	4.4985	4.3106	4.1371
24	7.2829	6.8351	6.4338	6.0726	5.7465	5.4509	5.1822	4.9371	4.7128	4.5070	4.3176	4.1428
25	7.3300	6.8729	6.4641	6.0971	5.7662	5.4669	5.1951	4.9476	4.7213	4.5139	4.3232	4.1474
26	7.3717	6.9061	6.4906	6.1182	5.7831	5.4804	5.2060	4.9563	4.7284	4.5196	4.3278	4.1511
27	7.4086	6.9352	6.5135	6.1364	5.7975	5.4919	5.2151	4.9636	4.7342	4.5243	4.3316	4.1542
28	7.4412	6.9607	6.5335	6.1520	5.8099	5.5016	5.2228	4.9697	4.7390	4.5281	4.3346	4.1566
29	7.4701	6.9830	6.5509	6.1656	5.8204	5.5098	5.2292	4.9747	4.7430	4.5312	4.3371	4.1585
30	7.4957	7.0027	6.5660	6.1772	5.8294	5.5168	5.2347	4.9789	4.7463	4.5338	4.3391	4.1601
31	7.5183	7.0199	6.5791	6.1872	5.8371	5.5227	5.2392	4.9824	4.7490	4.5359	4.3407	4.1614
32	7.5383	7.0350	6.5905	6.1959	5.8437	5.5277	5.2430	4.9854	4.7512	4.5376	4.3421	4.1624
33	7.5560	7.0482	6.6005	6.2034	5.8493	5.5320	5.2462	4.9878	4.7531	4.5390	4.3431	4.1632
34	7.5717	7.0599	6.6091	6.2098	5.8541	5.5356	5.2489	4.9898	4.7546	4.5402	4.3440	4.1639
35	7.5856	7.0700	6.6166	6.2153	5.8582	5.5386	5.2512	4.9915	4.7559	4.5411	4.3447	4.1644
36	7.5979	7.0790	6.6231	6.2201	5.8617	5.5412	5.2531	4.9929	4.7569	4.5419	4.3453	4.1649
37	7.6087	7.0868	6.6288	6.2242	5.8647	5.5434	5.2547	4.9941	4.7578	4.5426	4.3458	4.1652
38	7.6183	7.0937	6.6338	6.2278	5.8673	5.5452	5.2561	4.9951	4.7585	4.5431	4.3462	4.1655
39	7.6268	7.0997	6.6380	6.2309	5.8695	5.5468	5.2572	4.9959	4.7591	4.5435	4.3465	4.1657
40	7.6344	7.1050	6.6418	6.2335	5.8713	5.5482	5.2582	4.9966	4.7596	4.5439	4.3467	4.1659