

(10%) 1. 某石油公司之成本與利潤函數如下:

$$TC(x) = 50,000 + 20.2x + 0.0001x^2, \quad x \geq 0$$

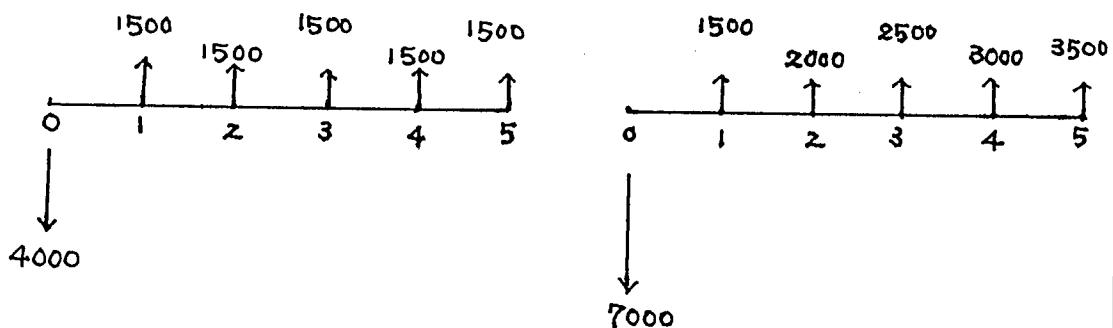
$$TP(x) = Sx - TC(x)$$

其中  $x$  = 石油產量 (桶/周)

$S$  = 油產之銷售價格, 35 (\$/桶).

- (1) 求最低成本之產量水準 (桶/周), 及其單位生產成本 (\$/桶).
- (2) 求每周可達到之最大利潤, 及最大利潤之產量水準.

(10%) 2. 試估計折現率 (interest or discount rate) 使得下列二種現金流量狀況等值.



(20%) 3. 某設備之投資費 \$20,000, 壽年 8 年, 最終之殘值 \$5000。使用該設備之每年營運費用 \$2300, 每年之營運收入 \$8500。請分別以現值法 (Present Worth Method)、年金法 (Annual Worth Method)、未來值法 (Future Worth Method)、內生報酬率法 (Internal Rate of Return Method)、及外生報酬率法 (External Rate of Return Method) 計算該投資之價值, 並依計算結果說明是否適宜投資。(折現率 = 25%)

(10%) 4. (1) 請說明估計投資價值時對通貨膨脹 (Inflation) 之處理方式。

(2) 請說明比較壽年不同投資方案時之處理方式。

(10%) 5. 考慮建設一灌溉用水庫、或防洪用水庫、或灌溉暨防洪用水庫；灌溉用水庫建設、營運、及維修成本之現值為 \$14,500,000，灌溉之效益現值為 \$25,000,000；防洪用水庫之成本現值為 \$9,000,000，防洪效益現值為 \$6,000,000；修改灌溉用水庫之設計<sup>可</sup>使之同時具有防洪功能，此種設計之成本現值為 \$18,500,000。若無預算上之限制，依效益/成本比率法 (Benefit/Cost Ratio Method)，您建議之建設方案為何。

(15%) 6. (1) 請說明成本效果分析 (Cost-Effectiveness Analysis) 之意義與步驟。  
(2) 若某設備之 4 種設計的成本與可靠度 (reliability) 狀況如下，請說明適宜之選擇為何及理由。

設計	生命週期成本	可靠度
1	2.4 (百元)	0.99
2	2.4	0.98
3	2.0	0.98
4	2.0	0.97

(15%) 7. 某廠商考慮：擴建生產廠房、重新安排生產線、及維持原狀之抉擇。若擴建則有 0.8 之機率造成競爭優勢而增加<sup>淨</sup>收益 \$90 (百元)，有 0.2 之機率引起劇烈競爭而減少淨收益 \$100 (百元)。若重新安排生產線則有 0.6 之機率造成部分優勢而增加淨收益 \$50 (百元)，有 0.4 之機率引發一些競爭而僅增加淨收益 \$30 (百元)。此處之淨收益為依現值法計算各改善結果 (效益減改善成本) 之淨值。您的建議為何及理由。

(10%) 8. 若評選建設或投資方案時，決策者考量之目標為數個時；請說明多目標評估之程序及評選的方法。

Table A2 Discrete Compound Interest Table  $i = 10\%$

n	COMPOUND			DISCOUNT			COMPOUND			DISCOUNT		
	AMOUNT	FACTOR	FACTOR	AMOUNT	FACTOR	FACTOR	AMOUNT	FACTOR	FACTOR	AMOUNT	FACTOR	FACTOR
(F/P, i, n)	(P/F, i, n)	(F/U, i, n)	(U/F, i, n)	(P/U, i, n)	(U/P, i, n)	(P/G, i, n)	(F/P, i, n)	(P/F, i, n)	(F/U, i, n)	(U/F, i, n)	(P/U, i, n)	(U/P, i, n)
1	1.0100	0.9901	1.0000	1.0000	0.9901	1.0100	0.0000	0.9803	1.0000	0.0000	0.9803	1.0000
2	1.0201	0.9803	2.0100	0.4975	1.9704	0.5075	0.9803	0.9706	3.0301	0.3400	2.9214	0.9706
3	1.0303	0.9706	3.0301	0.3300	2.9214	0.3400	0.9706	0.9610	4.0604	0.2463	3.9020	0.9610
4	1.0406	0.9610	4.0604	0.2463	3.9020	0.2563	0.9610	0.9515	5.1010	0.1960	4.8534	0.9515
5	1.0510	0.9515	5.1010	0.1960	4.8534	0.2060	0.9515	0.9420	6.1520	0.1625	5.7955	0.9420
6	1.0615	0.9420	6.1520	0.1625	5.7955	0.1725	0.9420	0.9327	7.2135	0.1386	6.7282	0.9327
7	1.0721	0.9327	7.2135	0.1386	6.7282	0.1486	0.9327	0.9235	8.2857	0.1207	7.6817	0.9235
8	1.0829	0.9235	8.2857	0.1207	7.6817	0.1107	0.9235	0.9143	9.3685	0.1067	8.5860	0.9143
9	1.0937	0.9143	9.3685	0.1067	8.5860	0.1167	0.9143	0.9053	10.4622	0.0956	9.4713	0.9053
10	1.1046	0.9053	10.4622	0.0956	9.4713	0.1056	0.9053	0.8963	11.5668	0.0865	10.3676	0.8963
11	1.1157	0.8963	11.5668	0.0865	10.3676	0.0965	0.8963	0.8874	12.6825	0.0788	11.2551	0.8874
12	1.1268	0.8874	12.6825	0.0788	11.2551	0.0888	0.8874	0.8787	13.8093	0.0724	12.1337	0.8787
13	1.1381	0.8787	13.8093	0.0724	12.1337	0.0824	0.8787	0.8700	14.9474	0.0669	13.0037	0.8700
14	1.1495	0.8700	14.9474	0.0669	13.0037	0.0769	0.8700	0.8613	16.0969	0.0621	13.8650	0.8613
15	1.1610	0.8613	16.0969	0.0621	13.8650	0.0721	0.8613	0.8528	17.2579	0.0579	14.7179	0.8528
16	1.1726	0.8528	17.2579	0.0579	14.7179	0.0679	0.8528	0.8443	18.4304	0.0543	15.5622	0.8443
17	1.1843	0.8443	18.4304	0.0543	15.5622	0.0633	0.8443	0.8350	19.6147	0.0510	16.3983	0.8350
18	1.1961	0.8350	19.6147	0.0510	16.3983	0.0581	0.8350	0.8257	20.8109	0.0481	17.2260	0.8257
19	1.2081	0.8257	20.8109	0.0481	17.2260	0.0541	0.8257	0.8165	22.0219	0.0454	18.0455	0.8165
20	1.2202	0.8165	22.0219	0.0454	18.0455	0.0515	0.8165	0.8074	23.2392	0.0430	18.8570	0.8074
21	1.2324	0.8074	23.2392	0.0430	18.8570	0.0509	0.8074	0.7984	24.4716	0.0409	19.6604	0.7984
22	1.2447	0.7984	24.4716	0.0409	19.6604	0.0489	0.7984	0.7894	25.7163	0.0389	20.4558	0.7894
23	1.2572	0.7894	25.7163	0.0389	20.4558	0.0471	0.7894	0.7806	26.9735	0.0371	21.2434	0.7806
24	1.2697	0.7806	26.9735	0.0371	21.2434	0.0454	0.7806	0.7719	28.2432	0.0356	22.0231	0.7719
25	1.2824	0.7719	28.2432	0.0356	22.0231	0.0439	0.7719	0.7633	29.5256	0.0339	22.7952	0.7633
26	1.2953	0.7633	29.5256	0.0339	22.7952	0.0439	0.7633	0.7548	30.8209	0.0324	23.5596	0.7548
27	1.3082	0.7548	30.8209	0.0324	23.5596	0.0411	0.7548	0.7463	32.1291	0.0311	24.3164	0.7463
28	1.3213	0.7463	32.1291	0.0311	24.3164	0.0402	0.7463	0.7379	33.4504	0.0299	25.0658	0.7379
29	1.3345	0.7379	33.4504	0.0299	25.0658	0.0399	0.7379	0.7295	34.7849	0.0287	25.8077	0.7295
30	1.3478	0.7295	34.7849	0.0287	25.8077	0.0387	0.7295	0.7212	36.1327	0.0276	26.5422	0.7212
35	1.4166	0.7059	41.6603	0.0240	29.4086	0.0340	0.7059	0.6976	41.6603	0.0240	29.4086	0.6976
40	1.4889	0.6717	48.8863	0.0205	32.8147	0.0305	0.6717	0.6833	48.8863	0.0205	32.8147	0.6833
45	1.5646	0.6391	56.4810	0.0177	36.0945	0.0277	0.6391	0.6690	56.4810	0.0177	36.0945	0.6690
50	1.6446	0.6080	64.4631	0.0155	39.1961	0.0255	0.6080	0.6548	64.4631	0.0155	39.1961	0.6548
55	1.7285	0.5785	72.8524	0.0137	42.1472	0.0237	0.5785	0.6407	72.8524	0.0137	42.1472	0.6407
60	1.8167	0.5504	81.6696	0.0122	44.9550	0.0222	0.5504	0.6267	81.6696	0.0122	44.9550	0.6267
70	2.0068	0.4983	100.6763	0.0099	50.1885	0.0199	0.4983	0.6028	100.6763	0.0099	50.1885	0.6028
80	2.2167	0.4511	121.6714	0.0082	54.8882	0.0182	0.4511	0.5882	121.6714	0.0082	54.8882	0.5882
90	2.4486	0.4084	144.8632	0.0069	59.1609	0.0169	0.4084	0.5739	144.8632	0.0069	59.1609	0.5739
100	2.7048	0.3697	170.4812	0.0059	63.0289	0.0159	0.3697	0.5595	170.4812	0.0059	63.0289	0.5595

Table A6 Discrete Compound Interest Table  $i = 5.0\%$

n	COMPOUND			DISCOUNT			COMPOUND			DISCOUNT		
	AMOUNT	FACTOR	FACTOR	AMOUNT	FACTOR	FACTOR	AMOUNT	FACTOR	FACTOR	AMOUNT	FACTOR	FACTOR
(F/P, i, n)	(P/F, i, n)	(F/U, i, n)	(U/F, i, n)	(P/U, i, n)	(U/P, i, n)	(P/G, i, n)	(F/P, i, n)	(P/F, i, n)	(F/U, i, n)	(U/F, i, n)	(P/U, i, n)	(U/P, i, n)
1	1.0500	0.9524	1.0000	1.0000	0.9524	1.0500	0.0000	0.9428	1.0000	0.0000	0.9428	1.0000
2	1.1025	0.9070	2.0500	0.4878	1.8594	0.5378	0.9070	0.9150	3.0301	0.3400	2.9214	0.9150
3	1.1576	0.8638	3.1525	0.3172	2.7232	0.3672	0.8638	0.9287	4.3101	0.2320	3.5460	0.9287
4	1.2155	0.8227	4.3101	0.2320	3.5460	0.2820	0.8227	0.9413	5.7256	0.1810	4.3295	0.9413
5	1.2763	0.7835	5.7256	0.1810	4.3295	0.2510	0.7835	0.9548	7.2135	0.1470	5.0757	0.9548
6	1.3401	0.7462	6.8019	0.1470	5.0757	0.1970	0.7462	0.9684	8.7684	0.1228	5.7864	0.9684
7	1.4071	0.7107	8.1420	0.1228	5.7864	0.1728	0.7107	0.9821	10.4622	0.1047	6.4632	0.9821
8	1.4775	0.6768	9.5491	0.0907	7.1078	0.1547	0.6768	0.9959	12.3685	0.0907	7.1078	0.9959
9	1.5513	0.6446	11.0266	0.0697	7.1078	0.1407	0.6446	1.0100	14.4000	0.0795	7.1078	1.0100
10	1.6289	0.6139	12.5779	0.0595	7.1078	0.1295	0.6139	1.0248	16.6520	0.0704	8.3064	1.0248
11	1.7103	0.5847	14.2068	0.0504	8.3064	0.1204	0.5847	1.0397	18.9440	0.0628	9.3936	1.0397
12	1.7959	0.5568	15.9171	0.0423	9.3936	0.1128	0.5568	1.0548	21.2825	0.0565	10.3676	1.0548
13	1.8856	0.5303	17.7130	0.0355	10.3676	0.1065	0.5303	1.0700	24.6825	0.0510	11.2551	1.0700
14	1.9799	0.5051	19.5986	0.0297	11.2551	0.1010	0.5051	1.0854	28.1520	0.0454	12.1337	1.0854
15	2.0789	0.4810	21.5786	0.0250	12.1337	0.0963	0.4810	1.1010	31.6920	0.0409	13.0037	1.1010
16	2.1829	0.4581	23.6575	0.0210	13.0037	0.0923	0.4581	1.1167	35.4000	0.0371	13.8650	1.1167
17	2.2920	0.4363	25.8404	0.0180	13.8650	0.0887	0.4363	1.1331	39.2725	0.0340	14.7179	1.1331
18	2.4066	0.4155	28.1324	0.0155	14.7179	0.0855	0.4155	1.1500	43.2000	0.0311	15.5622	1.1500
19	2.5269	0.3957	30.5390	0.0130	15.5622	0.0827	0.3957	1.1675	47.1825	0.0287	16.3983	1.1675
20	2.6533	0.3769	33.0659	0.0302	16.3983	0.0802	0.3769	1.1856	51.2200	0.0263	17.2260	1.1856
21	2.7860	0.3589	35.7192	0.0280	17.2260	0.0780	0.3589	1.2041	55.4200	0.0248	18.0455	1.2041
22	2.9253	0.3418	38.5052	0.0260	18.0455	0.0760	0.3418	1.2231	59.7800	0.0233	18.8570	1.2231
23	3.0715	0.3256	41.4305	0.0241	18.8570	0.0741	0.3256	1.2425	64.3000	0.0219	19.6604	1.2425
24	3.2251	0.3101	44.5020	0.0225	19.6604	0.0725	0.3101	1.2623	68.9800	0.0206	20.4558	1.2623
25	3.3864	0.2953	47.7271	0.0210	20.4558	0.0710	0.2953	1.2825	73.8200	0.0194	21.2434	1.2825
26	3.5557	0.2812	51.1134	0.0196	21.2434	0.0696	0.2812	1.3031	78.8200	0.0183	22.0231	1.3031
27	3.7335	0.2678	54.6691	0.0183	22.0231	0.0683	0.2678	1.3241	83.9800	0.0173	22.7952	1.3241
28	3.9201	0.2551	58.4026	0.0171	22.7952	0.0671	0.2551	1.3455	89.3000	0.0163	23.5596	1.3455
29	4.1161	0.2429	62.3227	0.0160	23.5596	0.0660	0.2429	1.3673	94.7800	0.0153	24.3164	1.3673
30	4.3219	0.2314	66.4388	0.0151	24.3164	0.0651	0.2314	1.3895	100.4200	0.0144	25.0658	1.3895
35	5.5160	0.1813	90.3203	0.0111	29.4086	0.0611	0.1813	1.4889	121.6714	0.0100	32.8147	1.4889
40	7.0400	0.1420	120.7997	0.0083	32.8147	0.0563	0.1420	1.5985	144.8632	0.0075	36.0945	1.5985
45	8.9850	0.1113	159.7901	0.0063	36.0945	0.0517	0.1113	1.7187	170.4812	0.0059	39.1961	1.7187
50	11.4674	0.0872	209.3479	0.0048	39.1961	0.0471	0.0872	1.8495	200.6763	0.0049	42.1472	1.8495
55	14.6356	0.0683	272.7125	0.0037	42.1472	0.0431	0.0683	1.9917	235.4125	0.0040	44.9550	1.9917
60	18.6792	0.0535	351.5836	0.0028	44.9550	0.0393	0.0535	2.1463	275.6250	0.0032	47.7179	2.1463
70	30.4264	0.0329	588.5283	0.0017	50.1885	0.0317	0.0329	2.4486	341.4312	0.0022	54.8882	2.4486
80	49.5614	0.0202	971.2283	0.0010	54.8882	0.0250	0.0202	2.7955	421.6			

Table A.11 Discrete Compound Interest Table  $i = 10.0\%$

n	COMPOUND AMOUNT FACTOR		DISCOUNT FACTOR		UNIFORM SERIES FACTOR		SINKING FUND FACTOR		DISCOUNT SERIES FACTOR		CAPITAL RECOVERY FACTOR		DISCOUNT GRADIENT FACTOR	
	(F/P, i, n)	(P/F, i, n)	(F/U, i, n)	(U/F, i, n)	(P/U, i, n)	(U/P, i, n)	(P/G, i, n)							
1	1.1000	0.9091	1.0000	1.0000	0.9091	1.1000	0.0000							
2	1.2100	0.8264	2.1000	0.4762	1.7355	0.5762	0.8264							
3	1.3310	0.7513	3.3100	0.3791	2.4869	0.4021	2.3291							
4	1.4641	0.6830	4.6410	0.2155	3.1699	0.3155	4.3781							
5	1.6105	0.6209	6.1051	0.1638	3.7908	0.2638	6.8618							
6	1.7716	0.5645	7.7156	0.1296	4.3553	0.2296	9.6842							
7	1.9487	0.5132	9.4872	0.1054	4.8684	0.2054	12.7631							
8	2.1436	0.4665	11.4359	0.0874	5.3349	0.1874	16.0287							
9	2.3579	0.4241	13.5795	0.0736	5.7590	0.1736	19.4214							
10	2.5937	0.3855	15.9374	0.0627	6.1446	0.1627	22.8913							
11	2.8531	0.3505	18.5312	0.0540	6.4951	0.1540	26.5363							
12	3.1384	0.3186	21.3843	0.0468	6.8137	0.1468	29.9012							
13	3.4523	0.2897	24.5227	0.0408	7.1034	0.1408	33.3772							
14	3.7975	0.2633	27.9750	0.0357	7.3667	0.1357	36.8005							
15	4.1772	0.2394	31.7725	0.0315	7.6061	0.1315	40.1820							
16	4.5950	0.2176	35.9497	0.0278	7.8237	0.1278	43.4164							
17	5.0545	0.1978	40.5447	0.0247	8.0216	0.1247	46.5819							
18	5.5599	0.1799	45.5892	0.0219	8.2014	0.1219	49.6895							
19	6.1159	0.1635	51.1591	0.0195	8.3649	0.1195	52.5827							
20	6.7275	0.1486	57.2750	0.0175	8.5136	0.1175	55.4069							
21	7.4002	0.1351	64.0025	0.0156	8.6487	0.1156	58.1095							
22	8.1403	0.1228	71.4027	0.0140	8.7715	0.1140	60.6893							
23	8.9543	0.1117	79.5430	0.0126	8.8832	0.1126	63.1462							
24	9.8497	0.1015	88.4973	0.0113	8.9847	0.1113	65.4813							
25	10.8347	0.0923	98.3470	0.0102	9.0770	0.1102	67.6964							
26	11.9182	0.0839	109.1817	0.0092	9.1609	0.1092	69.7940							
27	13.1100	0.0761	121.0999	0.0083	9.2372	0.1083	71.7772							
28	14.4210	0.0693	134.2099	0.0075	9.3066	0.1075	73.6495							
29	15.8631	0.0630	148.6309	0.0067	9.3696	0.1067	75.4146							
30	17.4494	0.0573	164.4940	0.0061	9.4269	0.1061	77.0766							
35	28.1024	0.0356	271.0243	0.0037	9.6442	0.1037	83.9811							
40	45.2592	0.0221	442.5924	0.0023	9.7791	0.1023	88.9525							
45	72.8904	0.0137	718.9045	0.0014	9.8628	0.1014	92.4544							
50	117.3908	0.0085	1163.9079	0.0009	9.9148	0.1009	94.8889							
55	189.0590	0.0053	1880.5903	0.0005	9.9471	0.1005	96.5619							

Table A.14 Discrete Compound Interest Table  $i = 15.0\%$

n	COMPOUND AMOUNT FACTOR		DISCOUNT FACTOR		UNIFORM SERIES FACTOR		SINKING FUND FACTOR		DISCOUNT SERIES FACTOR		CAPITAL RECOVERY FACTOR		DISCOUNT GRADIENT FACTOR	
	(F/P, i, n)	(P/F, i, n)	(F/U, i, n)	(U/F, i, n)	(P/U, i, n)	(U/P, i, n)	(P/G, i, n)							
1	1.1500	0.8696	1.0000	1.0000	0.8696	1.1500	0.0000							
2	1.3225	0.7561	2.1500	0.4651	1.6257	0.6151	0.7561							
3	1.5209	0.6575	3.4725	0.2880	2.2812	0.4380	2.0712							
4	1.7450	0.5718	4.9934	0.2003	2.8550	0.3503	3.7864							
5	2.0114	0.4972	6.7424	0.1483	3.3522	0.2983	5.7751							
6	2.3331	0.4323	8.7537	0.1142	3.7845	0.2642	7.9368							
7	2.6690	0.3759	11.0668	0.0894	4.1604	0.2404	10.1924							
8	3.0519	0.3269	13.7268	0.0729	4.4873	0.2229	12.4607							
9	3.5179	0.2843	16.7858	0.0596	4.7716	0.2096	14.7548							
10	4.0456	0.2472	20.3037	0.0493	5.0188	0.1993	16.9795							
11	4.6524	0.2149	24.3493	0.0411	5.2337	0.1911	19.1289							
12	5.3503	0.1869	29.0017	0.0345	5.4206	0.1845	21.1849							
13	6.1328	0.1625	34.3519	0.0291	5.5831	0.1791	23.1352							
14	7.0157	0.1413	40.5047	0.0247	5.7245	0.1747	24.9725							
15	8.0171	0.1229	47.5804	0.0210	5.8474	0.1710	26.6930							
16	9.1576	0.1069	55.7175	0.0179	5.9542	0.1679	28.2960							
17	10.4613	0.0929	65.0751	0.0154	6.0472	0.1654	29.7828							
18	12.0755	0.0808	75.8364	0.0132	6.1280	0.1632	31.1565							
19	14.0218	0.0703	88.2118	0.0113	6.1982	0.1613	32.4213							
20	16.3665	0.0611	102.4436	0.0098	6.2593	0.1598	33.5822							
21	19.18215	0.0531	118.8101	0.0084	6.3125	0.1584	34.6448							
22	22.6447	0.0462	137.6316	0.0073	6.3587	0.1573	35.6150							
23	26.8915	0.0402	159.2764	0.0063	6.3988	0.1563	36.4988							
24	32.0652	0.0349	184.1678	0.0054	6.4338	0.1554	37.3023							
25	38.3190	0.0304	212.7930	0.0047	6.4641	0.1547	38.0314							
26	45.8568	0.0264	245.7120	0.0041	6.4906	0.1541	38.6918							
27	54.8553	0.0230	283.5688	0.0035	6.5135	0.1535	39.2890							
28	65.50656	0.0200	327.1041	0.0031	6.5335	0.1531	39.8283							
29	77.9755	0.0174	377.1697	0.0027	6.5509	0.1527	40.3146							
30	92.2118	0.0151	434.7451	0.0023	6.5660	0.1523	40.7526							

Table A.16 Discrete Compound Interest Table  $i = 20.0\%$

n	(FIP, i, n)			(FUI, i, n)			(PIU, i, n)			(UIP, i, n)			(PIG, i, n)		
	COMPOUND AMOUNT FACTOR	DISCOUNT AMOUNT FACTOR	UNIFORM SERIES FACTOR	COMPOUND AMOUNT FACTOR	DISCOUNT AMOUNT FACTOR	UNIFORM SERIES FACTOR	SINKING FUND FACTOR	DISCOUNT UNIFORM SERIES FACTOR	CAPITAL RECOVERY FACTOR	DISCOUNT UNIFORM SERIES FACTOR	SINKING FUND FACTOR	DISCOUNT UNIFORM SERIES FACTOR	CAPITAL RECOVERY FACTOR	DISCOUNT UNIFORM SERIES FACTOR	GRADIENT FACTOR
1	1.2000	0.8333	1.0000	1.0000	0.8333	1.2000	1.0000	0.8333	1.2000	1.0000	0.8333	1.2000	1.0000	0.8333	1.2000
2	1.4400	0.6944	2.2000	0.6944	1.3278	0.6545	0.6545	1.3278	0.6545	0.6944	1.3278	0.6545	0.6944	1.3278	0.6545
3	1.7280	0.5787	3.6400	0.5787	2.1065	0.4747	0.4747	2.1065	0.4747	0.5787	2.1065	0.4747	0.5787	2.1065	0.4747
4	2.0736	0.4823	5.3680	0.4823	2.5887	0.3863	0.3863	2.5887	0.3863	0.4823	2.5887	0.3863	0.4823	2.5887	0.3863
5	2.4883	0.4019	7.4416	0.4019	2.9906	0.3344	0.3344	2.9906	0.3344	0.4019	2.9906	0.3344	0.4019	2.9906	0.3344
6	2.9860	0.3349	9.9299	0.3349	3.3255	0.3007	0.3007	3.3255	0.3007	0.3349	3.3255	0.3007	0.3349	3.3255	0.3007
7	3.5632	0.2791	12.9159	0.2791	3.6046	0.2774	0.2774	3.6046	0.2774	0.2791	3.6046	0.2774	0.2791	3.6046	0.2774
8	4.2998	0.2326	16.4991	0.2326	3.8372	0.2606	0.2606	3.8372	0.2606	0.2326	3.8372	0.2606	0.2326	3.8372	0.2606
9	5.1598	0.1938	20.7989	0.1938	4.0310	0.2481	0.2481	4.0310	0.2481	0.1938	4.0310	0.2481	0.1938	4.0310	0.2481
10	6.1917	0.1615	25.9587	0.1615	4.1925	0.2385	0.2385	4.1925	0.2385	0.1615	4.1925	0.2385	0.1615	4.1925	0.2385
11	7.4301	0.1346	32.1504	0.1346	4.3271	0.2311	0.2311	4.3271	0.2311	0.1346	4.3271	0.2311	0.1346	4.3271	0.2311
12	8.9161	0.1122	39.5805	0.1122	4.4392	0.2253	0.2253	4.4392	0.2253	0.1122	4.4392	0.2253	0.1122	4.4392	0.2253
13	10.6993	0.0935	48.4966	0.0935	4.5327	0.2206	0.2206	4.5327	0.2206	0.0935	4.5327	0.2206	0.0935	4.5327	0.2206
14	12.8392	0.0779	59.1959	0.0779	4.6106	0.2169	0.2169	4.6106	0.2169	0.0779	4.6106	0.2169	0.0779	4.6106	0.2169
15	15.4070	0.0649	72.0351	0.0649	4.6755	0.2139	0.2139	4.6755	0.2139	0.0649	4.6755	0.2139	0.0649	4.6755	0.2139
16	18.4884	0.0541	87.4421	0.0541	4.7296	0.2114	0.2114	4.7296	0.2114	0.0541	4.7296	0.2114	0.0541	4.7296	0.2114
17	22.1861	0.0451	105.9305	0.0451	4.7746	0.2094	0.2094	4.7746	0.2094	0.0451	4.7746	0.2094	0.0451	4.7746	0.2094
18	26.6233	0.0376	128.1167	0.0376	4.8122	0.2078	0.2078	4.8122	0.2078	0.0376	4.8122	0.2078	0.0376	4.8122	0.2078
19	31.9480	0.0313	154.7400	0.0313	4.8435	0.2065	0.2065	4.8435	0.2065	0.0313	4.8435	0.2065	0.0313	4.8435	0.2065
20	38.3376	0.0261	186.6880	0.0261	4.8696	0.2054	0.2054	4.8696	0.2054	0.0261	4.8696	0.2054	0.0261	4.8696	0.2054
21	46.0051	0.0217	225.0256	0.0217	4.8913	0.2044	0.2044	4.8913	0.2044	0.0217	4.8913	0.2044	0.0217	4.8913	0.2044
22	55.2061	0.0181	271.0307	0.0181	4.9094	0.2037	0.2037	4.9094	0.2037	0.0181	4.9094	0.2037	0.0181	4.9094	0.2037
23	66.2474	0.0151	326.2368	0.0151	4.9245	0.2031	0.2031	4.9245	0.2031	0.0151	4.9245	0.2031	0.0151	4.9245	0.2031
24	79.4968	0.0126	392.4842	0.0126	4.9371	0.2025	0.2025	4.9371	0.2025	0.0126	4.9371	0.2025	0.0126	4.9371	0.2025
25	95.3962	0.0105	471.9810	0.0105	4.9476	0.2021	0.2021	4.9476	0.2021	0.0105	4.9476	0.2021	0.0105	4.9476	0.2021
26	114.4754	0.0087	567.3772	0.0087	4.9563	0.2018	0.2018	4.9563	0.2018	0.0087	4.9563	0.2018	0.0087	4.9563	0.2018
27	137.3705	0.0073	681.8527	0.0073	4.9636	0.2015	0.2015	4.9636	0.2015	0.0073	4.9636	0.2015	0.0073	4.9636	0.2015
28	164.8446	0.0061	819.2232	0.0061	4.9697	0.2012	0.2012	4.9697	0.2012	0.0061	4.9697	0.2012	0.0061	4.9697	0.2012
29	197.8136	0.0051	984.0678	0.0051	4.9747	0.2010	0.2010	4.9747	0.2010	0.0051	4.9747	0.2010	0.0051	4.9747	0.2010
30	237.3763	0.0042	1181.8814	0.0042	4.9789	0.2008	0.2008	4.9789	0.2008	0.0042	4.9789	0.2008	0.0042	4.9789	0.2008

Table A.17 Discrete Compound Interest Table  $i = 25.0\%$

n	(FIP, i, n)			(FUI, i, n)			(PIU, i, n)			(UIP, i, n)			(PIG, i, n)		
	COMPOUND AMOUNT FACTOR	DISCOUNT AMOUNT FACTOR	UNIFORM SERIES FACTOR	COMPOUND AMOUNT FACTOR	DISCOUNT AMOUNT FACTOR	UNIFORM SERIES FACTOR	SINKING FUND FACTOR	DISCOUNT UNIFORM SERIES FACTOR	CAPITAL RECOVERY FACTOR	DISCOUNT UNIFORM SERIES FACTOR	SINKING FUND FACTOR	DISCOUNT UNIFORM SERIES FACTOR	CAPITAL RECOVERY FACTOR	DISCOUNT UNIFORM SERIES FACTOR	GRADIENT FACTOR
1	1.2500	0.8000	1.0000	1.0000	0.8000	1.2500	1.0000	0.8000	1.2500	1.0000	0.8000	1.2500	1.0000	0.8000	1.2500
2	1.5625	0.6400	2.2500	0.6400	1.4444	1.4400	0.4444	1.4400	0.6400	1.4444	1.4400	0.4444	1.4400	0.6400	1.4444
3	1.9531	0.5120	3.8125	0.5120	0.2623	1.9520	0.2623	1.9520	0.5120	0.2623	1.9520	0.2623	1.9520	0.5120	3.8125
4	2.4414	0.4096	5.7656	0.4096	0.1734	2.3616	0.1734	2.3616	0.4096	0.1734	2.3616	0.1734	2.3616	0.4096	5.7656
5	3.0518	0.3277	8.2070	0.3277	0.1218	2.6893	0.1218	2.6893	0.3277	0.1218	2.6893	0.1218	2.6893	0.3277	8.2070
6	3.8147	0.2621	11.2588	0.2621	0.0888	2.9514	0.0888	2.9514	0.2621	0.0888	2.9514	0.0888	2.9514	0.2621	11.2588
7	4.7684	0.2097	15.0735	0.2097	0.0663	3.1611	0.0663	3.1611	0.2097	0.0663	3.1611	0.0663	3.1611	0.2097	15.0735
8	5.9605	0.1678	19.8419	0.1678	0.0504	3.3289	0.0504	3.3289	0.1678	0.0504	3.3289	0.0504	3.3289	0.1678	19.8419
9	7.4506	0.1342	25.8023	0.1342	0.0388	3.4631	0.0388	3.4631	0.1342	0.0388	3.4631	0.0388	3.4631	0.1342	25.8023
10	9.3132	0.1074	33.2529	0.1074	0.0301	3.5705	0.0301	3.5705	0.1074	0.0301	3.5705	0.0301	3.5705	0.1074	33.2529
11	11.6415	0.0859	42.5661	0.0859	0.0235	3.6564	0.0235	3.6564	0.0859	0.0235	3.6564	0.0235	3.6564	0.0859	42.5661
12	14.5519	0.0687	54.2077	0.0687	0.0184	3.7251	0.0184	3.7251	0.0687	0.0184	3.7251	0.0184	3.7251	0.0687	54.2077
13	18.1899	0.0550	68.7596	0.0550	0.0145	3.7801	0.0145	3.7801	0.0550	0.0145	3.7801	0.0145	3.7801	0.0550	68.7596
14	22.7374	0.0440	86.9495	0.0440	0.0115	3.8241	0.0115	3.8241	0.0440	0.0115	3.8241	0.0115	3.8241	0.0440	86.9495
15	28.4217	0.0352	109.6868	0.0352	0.0091	3.8593	0.0091	3.8593	0.0352	0.0091	3.8593	0.0091	3.8593	0.0352	109.6868
16	35.5271	0.0281	138.1085	0.0281	0.0072	3.8874	0.0072	3.8874	0.0281	0.0072	3.8874	0.0072	3.8874	0.0281	138.1085
17	44.4089	0.0225	173.6357	0.0225	0.0058	3.9099	0.0058	3.9099	0.0225	0.0058	3.9099	0.0058	3.9099	0.0225	173.6357
18	55.5112	0.0180	218.0446	0.0180	0.0046	3.9279	0.0046	3.9279	0.0180	0.0046	3.9279	0.0046	3.9279	0.0180	218.0446
19	69.3889	0.0144	273.5558	0.0144	0.0037	3.9424	0.0037	3.9424	0.0144	0.0037	3.9424	0.0037	3.9424	0.0144	273.5558
20	86.7362	0.0115	342.9447	0.0115	0.0029	3.9539	0.0029	3.9539	0.0115	0.0029	3.9539	0.0029	3.9539	0.0115	342.9447
21	108.4202	0.0092	429.6809	0.0092	0.0023	3.9631	0.0023	3.9631	0.0092	0.0023	3.9631	0.0023	3.9631	0.0092	429.6809
22	135.5253	0.0074	538.1011	0.0074	0.0019	3.9705	0.0019	3.9705	0.0074	0.0019	3.9705	0.0019	3.9705	0.0074	538.1011
23	169.4066	0.0059	673.6263	0.0059	0.0015	3.9764	0.0015	3.9764	0.0059	0.0015	3.9764	0.0015	3.9764	0.0059	673.6263
24	211.7582	0.0047	843.0329	0.0047	0.0012	3.9811	0.0012	3.9811	0.0047	0.0012	3.9811	0.0012	3.9811	0.0047	843.0329
25	264.6978	0.0038	1054.7912	0.0038	0.0009	3.9849	0.0009	3.9849	0.0038	0.0009	3.9849	0.0009	3.9849	0.0038	1054.7912
26	330.8722	0.0030	1319.4890	0.0030	0.0008	3.9879	0.0008	3.9879	0.0030	0.0008	3.9879	0.0008	3.9879	0.0030	1319.4890
27	413.5903	0.0024	1650.3612	0.0024	0.0006	3.9903	0.0006	3.9903	0.0024	0.0006	3.9903	0.0006	3.9903	0.0024	1650.3612
28	516.9879	0.0019	2063.9515	0.0019	0.0005	3.9923	0.0005	3.9923	0.0019	0.0005	3.9923	0.0005	3.9923	0.0019	2063.9515
29	646.2348	0.0015	2580.9394	0.0015	0.0004	3.9938	0.0004	3.9938	0.0015	0.0004	3.9938	0.0004	3.9938	0.0015	2580.9394
30	807.7935	0.0012	3227.1742	0.0012	0.0003	3.9950	0.0003	3.9950	0.0012	0.0003	3.9950	0.0003	3.9950	0.0012	3227.1742