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2nd SEM. 2006/2007

UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER

PROGRAMME: DEGREE IN AGRICULTURAL ECONOMICS
DEGREE IN CROP PRODUCTION
DEGREE IN ANIMAL PRODUCTION
DEGREE IN AGRICULTURAL EDUCATION

COURSE CODE: AEM 507

TITLE OF PAPER: PROJECT APPRAISAL AND EVALUATION

TIME ALLOWED: TWO (2) HOURS

INSTRUCTION: ANSWER ALL THREE (3) QUESTIONS

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QUESTION ONE

a. 'Project is the point at which national development plan becomes action-oriented.' Discuss this statement.

(10 Marks)

b A livestock producer is evaluating a E40,000 investment in a new feed storage and blending system. The producer believes (but is not absolutely certain) that the equipment will add E10,000 per year to the after-tax cash flow of the business. The system has a six-year life and a E4000 salvage value.

i Ignoring uncertainty, determine whether this investment is acceptable by calculating the NPV, using a 10% discount rate.

(10 Marks)

ii. Because of uncertainty concerning how well the new equipment will fit into existing facilities, the producer feels that this investment should offer a rate of return of 15% to allow for the added risk. Is the investment acceptable?

(10 Marks)

iii Calculate the internal rate of return (IRR) for the investment situation in question 1b (ii).

(10 Marks)

QUESTION TWO

a It is said that economic viability of a project is largely a function of its technical viability. Therefore, undertaking of a thorough technical analysis of a project is, in most cases, made a prerequisite for government or donor or aid-agency funding. As an agricultural economist, how would you argue in favour of this requirement?

(15 Marks)

b How can you estimate whether a capital project is worth more to an agribusiness firm than it costs?

(15 Marks)

QUESTION THREE

a. Compare and contrast the net present value (NPV), the benefit-cost ratio (B/C ratio), and the internal rate of return as criteria for public investment decisions. Is there really much at stake in choosing among these criteria?

(15 Marks)

b. In agricultural project analysis, four kinds of direct transfer payments are common. These are taxes, subsidies, loans, and debt service. Briefly discuss how you would treat each one of them in financial analysis and in economic analysis respectively.

(15 Marks)

APPENDIX TABLE 2: Present value of 1 at compound interest

$$v^n = \frac{1}{(1 + i)^n}$$

n	1%	2%	3%	4%	5%	6%	n
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	1
2	0.9803	0.9612	0.9426	0.9246	0.9070	0.8900	2
3	0.9706	0.9423	0.9151	0.8890	0.8638	0.8396	3
4	0.9610	0.9238	0.8885	0.8548	0.8227	0.7921	4
5	0.9515	0.9057	0.8626	0.8219	0.7835	0.7473	5
6	0.9420	0.8880	0.8375	0.7903	0.7462	0.7050	6
7	0.9327	0.8706	0.8131	0.7599	0.7107	0.6651	7
8	0.9235	0.8535	0.7894	0.7307	0.6768	0.6274	8
9	0.9143	0.8368	0.7664	0.7026	0.6446	0.5919	9
10	0.9053	0.8203	0.7441	0.6756	0.6139	0.5584	10
11	0.8963	0.8043	0.7224	0.6496	0.5847	0.5268	11
12	0.8874	0.7885	0.7014	0.6246	0.5568	0.4970	12
13	0.8787	0.7730	0.6810	0.6006	0.5303	0.4688	13
14	0.8700	0.7579	0.6611	0.5775	0.5051	0.4423	14
15	0.8613	0.7430	0.6419	0.5553	0.4810	0.4173	15
16	0.8528	0.7284	0.6232	0.5339	0.4581	0.3936	16
17	0.8444	0.7142	0.6050	0.5134	0.4363	0.3714	17
18	0.8360	0.7002	0.5874	0.4936	0.4155	0.3503	18
19	0.8277	0.6864	0.5703	0.4746	0.3957	0.3305	19
20	0.8195	0.6730	0.5537	0.4564	0.3769	0.3118	20
21	0.8114	0.6598	0.5375	0.4388	0.3589	0.2942	21
22	0.8034	0.6468	0.5219	0.4220	0.3418	0.2775	22
23	0.7954	0.6342	0.5067	0.4057	0.3256	0.2618	23
24	0.7876	0.6217	0.4919	0.3901	0.3101	0.2470	24
25	0.7798	0.6095	0.4776	0.3751	0.2953	0.2330	25
26	0.7720	0.5976	0.4637	0.3607	0.2812	0.2198	26
27	0.7644	0.5859	0.4502	0.3468	0.2678	0.2074	27
28	0.7568	0.5744	0.4371	0.3335	0.2551	0.1956	28
29	0.7493	0.5631	0.4243	0.3207	0.2429	0.1846	29
30	0.7419	0.5521	0.4120	0.3083	0.2314	0.1741	30
31	0.7346	0.5412	0.4000	0.2965	0.2204	0.1643	31
32	0.7273	0.5306	0.3883	0.2851	0.2099	0.1550	32
33	0.7201	0.5202	0.3770	0.2741	0.1999	0.1462	33
34	0.7130	0.5100	0.3660	0.2636	0.1904	0.1379	34
35	0.7059	0.5000	0.3554	0.2534	0.1813	0.1301	35
40	0.6717	0.4529	0.3066	0.2083	0.1420	0.0972	40
45	0.6391	0.4102	0.2644	0.1712	0.1113	0.0727	45
50	0.6080	0.3715	0.2281	0.1407	0.0872	0.0543	50
55	0.5785	0.3365	0.1968	0.1157	0.0683	0.0406	55
60	0.5504	0.3048	0.1697	0.0951	0.0535	0.0303	60

APPENDIX TABLE 2 (*continued*): Present value of 1 at compound interest

$$v^n = \frac{1}{(1 + i)^n}$$

n	7%	8%	9%	10%	11%	12%	n
1	0.9346	0.9259	0.9174	0.9091	0.9009	0.8929	1
2	0.8734	0.8573	0.8417	0.8264	0.8116	0.7972	2
3	0.8163	0.7938	0.7722	0.7513	0.7312	0.7118	3
4	0.7629	0.7350	0.7084	0.6830	0.6587	0.6355	4
5	0.7130	0.6806	0.6499	0.6209	0.5935	0.5674	5
6	0.6663	0.6302	0.5963	0.5645	0.5346	0.5066	6
7	0.6227	0.5835	0.5470	0.5132	0.4817	0.4523	7
8	0.5820	0.5403	0.5019	0.4665	0.4339	0.4039	8
9	0.5439	0.5002	0.4604	0.4241	0.3909	0.3606	9
10	0.5083	0.4632	0.4224	0.3855	0.3522	0.3220	10
11	0.4751	0.4289	0.3875	0.3505	0.3173	0.2875	11
12	0.4440	0.3971	0.3555	0.3186	0.2858	0.2567	12
13	0.4150	0.3677	0.3262	0.2897	0.2575	0.2292	13
14	0.3878	0.3405	0.2992	0.2633	0.2320	0.2046	14
15	0.3624	0.3152	0.2745	0.2394	0.2090	0.1827	15
16	0.3387	0.2919	0.2519	0.2176	0.1883	0.1631	16
17	0.3166	0.2703	0.2311	0.1978	0.1696	0.1456	17
18	0.2959	0.2502	0.2120	0.1799	0.1528	0.1300	18
19	0.2765	0.2317	0.1945	0.1635	0.1377	0.1161	19
20	0.2584	0.2145	0.1784	0.1486	0.1240	0.1037	20
21	0.2415	0.1987	0.1637	0.1351	0.1117	0.0926	21
22	0.2257	0.1839	0.1502	0.1228	0.1007	0.0826	22
23	0.2109	0.1703	0.1378	0.1117	0.0907	0.0738	23
24	0.1971	0.1577	0.1264	0.1015	0.0817	0.0659	24
25	0.1842	0.1460	0.1160	0.0923	0.0736	0.0588	25
26	0.1722	0.1352	0.1064	0.0839	0.0663	0.0525	26
27	0.1609	0.1252	0.0976	0.0763	0.0597	0.0469	27
28	0.1504	0.1159	0.0895	0.0693	0.0538	0.0419	28
29	0.1406	0.1073	0.0822	0.0630	0.0485	0.0374	29
30	0.1314	0.0994	0.0754	0.0573	0.0437	0.0334	30
31	0.1228	0.0920	0.0691	0.0521	0.0394	0.0298	31
32	0.1147	0.0852	0.0634	0.0474	0.0355	0.0266	32
33	0.1072	0.0789	0.0582	0.0431	0.0319	0.0238	33
34	0.1002	0.0730	0.0534	0.0391	0.0288	0.0212	34
35	0.0937	0.0676	0.0490	0.0356	0.0259	0.0189	35
40	0.0668	0.0460	0.0318	0.0221	0.0154	0.0107	40
45	0.0476	0.0313	0.0207	0.0137	0.0091	0.0061	45
50	0.0339	0.0213	0.0134	0.0085	0.0054	0.0035	50
55	0.0242	0.0145	0.0087	0.0053	0.0032	0.0020	55
60	0.0173	0.0099	0.0057	0.0033	0.0019	0.0011	60

APPENDIX TABLE 2 (*continued*): Present value of 1 at compound interest

$$v^n = \frac{1}{(1+i)^n}$$

n	13%	14%	15%	16%	18%	20%	n
1	0.8850	0.8772	0.8696	0.8621	0.8475	0.8333	1
2	0.7831	0.7695	0.7561	0.7432	0.7182	0.6944	2
3	0.6931	0.6750	0.6575	0.6407	0.6086	0.5787	3
4	0.6133	0.5921	0.5718	0.5523	0.5158	0.4823	4
5	0.5428	0.5194	0.4972	0.4761	0.4371	0.4019	5
6	0.4803	0.4556	0.4323	0.4104	0.3704	0.3349	6
7	0.4251	0.3996	0.3759	0.3538	0.3139	0.2791	7
8	0.3762	0.3506	0.3269	0.3050	0.2660	0.2326	8
9	0.3329	0.3075	0.2843	0.2630	0.2255	0.1938	9
10	0.2946	0.2697	0.2472	0.2267	0.1911	0.1615	10
11	0.2607	0.2366	0.2149	0.1954	0.1619	0.1346	11
12	0.2307	0.2076	0.1869	0.1685	0.1372	0.1122	12
13	0.2042	0.1821	0.1625	0.1452	0.1163	0.0935	13
14	0.1807	0.1597	0.1413	0.1252	0.0985	0.0779	14
15	0.1599	0.1401	0.1229	0.1079	0.0835	0.0649	15
16	0.1415	0.1229	0.1069	0.0930	0.0708	0.0541	16
17	0.1252	0.1078	0.0929	0.0802	0.0600	0.0451	17
18	0.1108	0.0946	0.0808	0.0691	0.0508	0.0376	18
19	0.0981	0.0829	0.0703	0.0596	0.0431	0.0313	19
20	0.0868	0.0728	0.0611	0.0514	0.0365	0.0261	20
21	0.0768	0.0638	0.0531	0.0443	0.0309	0.0217	21
22	0.0680	0.0560	0.0462	0.0382	0.0262	0.0181	22
23	0.0601	0.0491	0.0402	0.0329	0.0222	0.0151	23
24	0.0532	0.0431	0.0349	0.0284	0.0188	0.0126	24
25	0.0471	0.0378	0.0304	0.0245	0.0160	0.0105	25
26	0.0417	0.0331	0.0264	0.0211	0.0135	0.0087	26
27	0.0369	0.0291	0.0230	0.0182	0.0115	0.0073	27
28	0.0326	0.0255	0.0200	0.0157	0.0097	0.0061	28
29	0.0289	0.0224	0.0174	0.0135	0.0082	0.0051	29
30	0.0256	0.0196	0.0151	0.0116	0.0070	0.0042	30
31	0.0226	0.0172	0.0131	0.0100	0.0059	0.0035	31
32	0.0200	0.0151	0.0114	0.0087	0.0050	0.0029	32
33	0.0177	0.0132	0.0099	0.0075	0.0042	0.0024	33
34	0.0157	0.0116	0.0086	0.0064	0.0036	0.0020	34
35	0.0139	0.0102	0.0075	0.0055	0.0030	0.0017	35
40	0.0075	0.0053	0.0037	0.0026	0.0013	0.0007	40
45	0.0041	0.0027	0.0019	0.0013	0.0006	0.0003	45
50	0.0022	0.0014	0.0009	0.0006	0.0003	0.0001	50
55	0.0012	0.0007	0.0005	0.0003	0.0001	0.0000	55
60	0.0007	0.0004	0.0002	0.0001	0.0000	0.0000	60

APPENDIX TABLE 2 (*continued*): Present value of 1 at compound interest

$$v^n = \frac{1}{(1+i)^n}$$

n	25%	30%	35%	40%	45%	50%	n
1	0.8000	0.7692	0.7407	0.7143	0.6897	0.6667	1
2	0.6400	0.5917	0.5487	0.5102	0.4756	0.4444	2
3	0.5120	0.4552	0.4064	0.3644	0.3280	0.2963	3
4	0.4096	0.3501	0.3011	0.2603	0.2262	0.1975	4
5	0.3277	0.2693	0.2230	0.1859	0.1560	0.1317	5
6	0.2621	0.2072	0.1652	0.1328	0.1076	0.0878	6
7	0.2097	0.1594	0.1224	0.0949	0.0742	0.0585	7
8	0.1678	0.1226	0.0906	0.0678	0.0512	0.0390	8
9	0.1342	0.0943	0.0671	0.0484	0.0353	0.0260	9
10	0.1074	0.0725	0.0497	0.0346	0.0243	0.0173	10
11	0.0859	0.0558	0.0368	0.0247	0.0168	0.0116	11
12	0.0687	0.0429	0.0273	0.0176	0.0116	0.0077	12
13	0.0550	0.0330	0.0202	0.0126	0.0080	0.0051	13
14	0.0440	0.0254	0.0150	0.0090	0.0055	0.0034	14
15	0.0352	0.0195	0.0111	0.0064	0.0038	0.0023	15
16	0.0281	0.0150	0.0082	0.0046	0.0026	0.0015	16
17	0.0225	0.0116	0.0061	0.0033	0.0018	0.0010	17
18	0.0180	0.0089	0.0045	0.0023	0.0012	0.0007	18
19	0.0144	0.0068	0.0033	0.0017	0.0009	0.0005	19
20	0.0115	0.0053	0.0025	0.0012	0.0006	0.0003	20
21	0.0092	0.0040	0.0018	0.0009	0.0004	0.0002	21
22	0.0074	0.0031	0.0014	0.0006	0.0003	0.0001	22
23	0.0059	0.0024	0.0010	0.0004	0.0002	0.0001	23
24	0.0047	0.0018	0.0007	0.0003	0.0001	0.0001	24
25	0.0038	0.0014	0.0006	0.0002	0.0001	0.0000	25
26	0.0030	0.0011	0.0004	0.0002	0.0001		26
27	0.0024	0.0008	0.0003	0.0001	0.0000		27
28	0.0019	0.0006	0.0002	0.0001			28
29	0.0015	0.0005	0.0002	0.0001			29
30	0.0012	0.0004	0.0001	0.0000			30
31	0.0010	0.0003	0.0001				31
32	0.0008	0.0002	0.0001				32
33	0.0006	0.0002	0.0001				33
34	0.0005	0.0001	0.0000				34
35	0.0004	0.0001					35
40	0.0001	0.0000					40
45	0.0000						45