UNIVERSITY OF SWAZILAND

SUPPLEMENTARY EXAMINATION PAPER

PROGRAMME: DEGREE IN AGRICULTURE (AEM OPTION) V

COURSE CODE: AEM 509

TITLE OF PAPER: AGRICULTURAL FINANCE

TIME ALLOWED: TWO (2) HOURS

INSTRUCTION: ANSWER ALL THREE (3) QUESTIONS

DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN GRANTED BY THE CHIEF INVIGILATOR

QUESTION ONE

a. The government of Swaziland plans to implement a project in Tambuti. When the residents were tasked to submit a project proposal, they rather submitted two proposals. Because of budget constraint, the government can embark on one project only, implying that the two projects are currently mutually exclusive. The expected cash flows (in thousands of Emalangeni) for the two mutually exclusive projects are given in Table 1. Both projects face the same opportunity cost of capital of 10%. You have been identified to assist the government in choosing one of the two projects. Obtain the values of the NPV and the IRR for each project, and justify your choice as which is the better project.

(20 Marks)

Table 1. Expected Cash Flows for Two Mutually Exclusive Projects

End of year	0	1	2	3	4	5
Project A	-15	10	8	6	0	0
Project B	-15	6	6	6	6	6

b. Introducing the course Agricultural Finance at the beginning of the semester, you were told that Agricultural finance is the economic study of the acquisition and use of capital in agriculture. In the latter part of the semester you learnt that the six basic methods for acquiring control of agricultural resources represent a continuum from pure equity to pure debt financing. Discuss the six basic methods and how you would fit each one on the continuum between equity and debt financing.

(10 Marks)

b. Discuss reasons for the increased importance of accurate capital investment analysis in agriculture and also describe the four steps in capital investment analysis.

(10 Marks)

QUESTION TWO

a. Underlying the portfolio approach to decision-making is the contention that by combining a number of risky assets into a 'portfolio', some degree of income stabilization can be achieved without impairing the expected profit. How would you explain this proposition to a lay man on the street

(15 Marks)

b. It is well known that additional leverage would increase the rate of firm growth, yet, internal and external capital rationing limit the use of financial leverage to generally accepted levels. Comment on this.

(15 Marks)

QUESTION THREE

a. Although a farmer's character or integrity is probably the most important for assessing his/her creditworthiness, yet, it is an insufficient criterion. Comment on this.

(10 Marks)

b. Risk-bearing ability and the capability to manage risks are necessary because of different kinds of change or uncertainty faced by farmers. Describe four major types of risk and uncertainty in agriculture and give an example of each in this country.

(10 Marks)

c. Farmers in your extension area, who are subsistence farmers, were advised to use diversification, flexibility and reserve borrowing capacity practices as strategies to reduce risk and uncertainty. Explain in detail these three strategies and comment on why you think the last strategy would not have any impact in risk reduction in your area.

(10 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
	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

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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
	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
	0.0532	0.0431	0.0349	0.0284	0.0188	0.0126	24
	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
	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

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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