

**UNIVERSITY OF SWAZILAND  
FINAL EXAMINATION PAPER, 2010**

**TITLE OF PAPER : PROJECT EVALUATION**

**COURSE CODE : ECON 305**

**TIME ALLOWED : THREE (3) HOURS**

- INSTRUCTIONS :**
- 1. ANSWER FOUR QUESTIONS:  
TWO FROM SECTION A AND  
TWO FROM SECTION B**
  - 2. ALL QUESTIONS CARRY EQUAL  
MARKS OF 25 EACH**

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GRANTED BY THE INVIGILATOR.**

## SECTION A

### Question 1

Write explanatory notes on each of the following:

- Advantages and disadvantages of the Pay Back Period
- Components of cost-benefit analysis
- Factors affecting reliability of figures utilized in cost-benefit analysis
- Criticisms of the cost-benefit analysis
- Public Sector Planning

[ 5 marks each]

### Question 2

Give a detailed presentation of a project life cycle

[ 25 marks]

### Question 3

a) “ **A bird in hand is worth two in the bush**”. Explain the relevance of this statement with regard to the time value of money in project appraisal. [5 marks]

b) Why are discounted measures necessary in project evaluation, what steps does discounting involve? [ 5 marks]

c) Consider the following cashflows:

<u>Year</u>	<u>Cashflow A</u>	<u>Cashflow B</u>
0	40, 000	40, 000
1	20, 000	15, 000
2	20, 000	10, 000
3	10, 000	10, 000
4	5, 000	20, 000

Calculate the return on capital employed for each project. What is the major limitation of this measure in project evaluation? [ 15 marks]

**Question 4**

a) Outline the advantages and disadvantages of the Internal Rate of Return as a measure in project evaluation. [ 7marks]

b) Find the discounted Payback Period given the following cashflows for Project A. Assume the required rate of return on the project is 20%:

<u>Project A</u>	<u>Undiscounted Cashflows</u>
0	-35, 000
1	10, 000
2	8, 000
3	10, 000
4	8, 000
5	5, 000
6	15, 000

[ 9 marks]

c) Calculate the Net Present Value of Project A. Is this result consistent with the result obtained in b) above? [ 9 marks]

**SECTOR B**

**Question 5**

Write explanatory notes on the following:

- a) Benefit –Cost Ratio and the Net Benefit Investment Ratio [ 5 marks]
- b) Replacement Chain Model [7 marks]
- c) Break-Even Analysis [ 6 marks]
- d) Critical Path Method (CPM) and steps involved in construction of a network diagram [ 7 marks]

**Question 6**

a ) A company has been engaged in ice cream production since 2007. During a project evaluation exercise carried out in 2008 it was found that the demand for ice cream had doubled. Company management is trying to decide among three different ways on expanding the company’s productive capacity. Each method involves different capital expenditure and benefits. Using different measures of investment worth, the company came out with the following results:

Investment	Payback Period (Years)	Return on Investments (RoI)	Net Present Value
A	2	10%	1, 000
B	4	18%	2, 500
C	3	15%	5, 500

Which investment should the company choose? Indicate the basis of your recommendation and explain why you relied on the investment measure that you chose rather than the other two measures.

[ 10 marks]

b) A company is interested in an investment that would require an initial capital outlay of E7000. The investment is expected to produce net cash inflows of E16000 per year for the first four years and E4000 in the fifth year. Assume that the management of the company has an 8% acceptable rate of return on investment and expects the project to payback within two years of implementation. Using the discounted Payback and the Net Present Value methods of project evaluation, determine the viability of the project.

Comment on your results

[ 15 marks]

### Question 7

a) Sibonakude Investments is considering making an investment which has the following cashflows:

<u>Year</u>	<u>Cashflow (E)</u>
0	(10220)
1	1500
2	5500
3	11000

Using the Net Present Value approach, given that the cost of capital is 10%, ascertain the desirability of the project..

[10 marks]

b) With the aid of diagrams discuss one method of dealing with negative externalities and one method of dealing with positive externalities.

[ 15 marks]

**Question 8**

- a) Explain the concepts of risk and uncertainty. [3 marks]
- b) One way of incorporating risk into a project is through sensitivity analysis, Discuss any four areas to which projects are sensitive. [8 marks]
- c) What are weaknesses of the sensitivity technique [4 marks]
- d) Compare and contrast the UNIDO and the OECD approaches to project evaluation in developing countries. [10 marks]

# APPENDIX C

## PRESENT VALUE OF \$1

n	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	.990	.980	.971	.962	.952	.943	.935	.926	.917	.909
2	.980	.961	.943	.925	.907	.890	.873	.857	.842	.826
3	.971	.942	.915	.889	.864	.840	.816	.794	.772	.751
4	.961	.924	.888	.855	.823	.792	.763	.735	.708	.683
5	.951	.906	.863	.822	.784	.747	.713	.681	.650	.621
6	.942	.888	.837	.790	.746	.705	.666	.630	.596	.564
7	.933	.871	.813	.760	.711	.665	.623	.583	.547	.513
8	.923	.853	.789	.731	.677	.627	.582	.540	.502	.467
9	.914	.837	.766	.703	.645	.592	.544	.500	.460	.424
10	.905	.820	.744	.676	.614	.558	.508	.463	.422	.386
11	.896	.804	.722	.650	.585	.527	.475	.429	.388	.350
12	.887	.789	.701	.625	.557	.497	.444	.397	.356	.319
13	.879	.773	.681	.601	.530	.469	.415	.368	.326	.290
14	.870	.758	.661	.577	.505	.442	.388	.340	.299	.263
15	.861	.743	.642	.555	.481	.417	.362	.315	.275	.239
16	.853	.728	.623	.534	.458	.394	.339	.292	.252	.218
17	.844	.714	.605	.513	.436	.371	.317	.270	.231	.198
18	.836	.700	.587	.494	.416	.350	.296	.250	.212	.180
19	.828	.686	.570	.475	.396	.331	.277	.232	.194	.164
20	.820	.673	.554	.456	.377	.312	.258	.215	.178	.149
21	.811	.660	.538	.439	.359	.294	.242	.199	.164	.135
22	.803	.647	.522	.422	.342	.278	.226	.184	.150	.123
23	.795	.634	.507	.406	.326	.262	.211	.170	.138	.112
24	.788	.622	.492	.390	.310	.247	.197	.158	.126	.102
25	.780	.610	.478	.375	.295	.233	.184	.146	.116	.092
30	.742	.552	.412	.308	.231	.174	.131	.099	.075	.057
40	.672	.453	.307	.208	.142	.097	.067	.046	.032	.022
50	.608	.372	.228	.141	.087	.054	.034	.021	.013	.009
n	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	.901	.893	.885	.877	.870	.862	.855	.847	.840	.833
2	.812	.797	.783	.769	.756	.743	.731	.718	.706	.694
3	.731	.712	.693	.675	.658	.641	.624	.609	.593	.579
4	.659	.636	.613	.592	.572	.552	.534	.516	.499	.482
5	.593	.567	.543	.519	.497	.476	.456	.437	.419	.402
6	.535	.507	.480	.456	.432	.410	.390	.370	.352	.335
7	.482	.452	.425	.400	.376	.354	.333	.314	.296	.279
8	.434	.404	.376	.351	.327	.305	.285	.266	.249	.233
9	.391	.361	.333	.308	.284	.263	.243	.225	.209	.194
10	.352	.322	.295	.270	.247	.227	.208	.191	.176	.162
11	.317	.287	.261	.237	.215	.195	.178	.162	.148	.135
12	.286	.257	.231	.208	.187	.168	.152	.137	.124	.112
13	.258	.229	.204	.182	.163	.145	.130	.116	.104	.093
14	.232	.205	.181	.160	.141	.125	.111	.099	.088	.078
15	.209	.183	.160	.140	.123	.108	.095	.084	.074	.065
16	.188	.163	.141	.123	.107	.093	.081	.071	.062	.054
17	.170	.146	.125	.108	.093	.080	.069	.060	.052	.045
18	.153	.130	.111	.095	.081	.069	.059	.051	.044	.038
19	.138	.116	.098	.083	.070	.060	.051	.043	.037	.031
20	.124	.104	.087	.073	.061	.051	.043	.037	.031	.026
21	.112	.093	.077	.064	.053	.044	.037	.031	.026	.022
22	.101	.083	.068	.056	.046	.038	.032	.026	.022	.018
23	.091	.074	.060	.049	.040	.033	.027	.022	.018	.015
24	.082	.066	.053	.043	.035	.028	.023	.019	.015	.013
25	.074	.059	.047	.038	.030	.024	.020	.016	.013	.010
30	.044	.033	.026	.020	.015	.012	.009	.007	.005	.004
40	.015	.011	.008	.005	.004	.003	.002	.001	.001	.001
50	.005	.003	.002	.001	.001	.001	.000	.000	.000	.000

**PRESENT VALUE OF \$1 (continued)**

<i>n</i>	21%	22%	23%	24%	25%	26%	27%	28%	29%	30%
1	.826	.820	.813	.806	.800	.794	.787	.781	.775	.769
2	.683	.672	.661	.650	.640	.630	.620	.610	.601	.592
3	.564	.551	.537	.524	.512	.500	.488	.477	.466	.455
4	.467	.451	.437	.423	.410	.397	.384	.373	.361	.350
5	.386	.370	.355	.341	.328	.315	.303	.291	.280	.269
6	.319	.303	.289	.275	.262	.250	.238	.227	.217	.207
7	.263	.249	.235	.222	.210	.198	.188	.178	.168	.159
8	.218	.204	.191	.179	.168	.157	.148	.139	.130	.123
9	.180	.167	.155	.144	.134	.125	.116	.108	.101	.094
10	.149	.137	.126	.116	.107	.099	.092	.085	.078	.073
11	.123	.112	.103	.094	.086	.079	.072	.066	.061	.056
12	.102	.092	.083	.076	.069	.062	.057	.052	.047	.043
13	.084	.075	.068	.061	.055	.050	.045	.040	.037	.033
14	.069	.062	.055	.049	.044	.039	.035	.032	.028	.025
15	.057	.051	.045	.040	.035	.031	.028	.025	.022	.020
16	.047	.042	.036	.032	.028	.025	.022	.019	.017	.015
17	.039	.034	.030	.026	.023	.020	.017	.015	.013	.012
18	.032	.028	.024	.021	.018	.016	.014	.012	.010	.009
19	.027	.023	.020	.017	.014	.012	.011	.009	.008	.007
20	.022	.019	.016	.014	.012	.010	.008	.007	.006	.005
21	.018	.015	.013	.011	.009	.008	.007	.006	.005	.004
22	.015	.013	.011	.009	.007	.006	.005	.004	.004	.003
23	.012	.010	.009	.007	.006	.005	.004	.003	.003	.002
24	.010	.008	.007	.006	.005	.004	.003	.003	.002	.002
25	.009	.007	.006	.005	.004	.003	.003	.002	.002	.001
30	.003	.003	.002	.002	.001	.001	.001	.001	.000	.000
40	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
50	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

  

<i>n</i>	31%	32%	33%	34%	35%	36%	37%	38%	39%	40%
1	.763	.758	.752	.746	.741	.735	.730	.725	.719	.714
2	.583	.574	.565	.557	.549	.541	.533	.525	.518	.510
3	.445	.435	.425	.416	.406	.398	.389	.381	.372	.364
4	.340	.329	.320	.310	.301	.292	.284	.276	.268	.260
5	.259	.250	.240	.231	.223	.215	.207	.200	.193	.186
6	.198	.189	.181	.173	.165	.158	.151	.145	.139	.133
7	.151	.143	.136	.129	.122	.116	.110	.105	.100	.095
8	.115	.108	.102	.096	.091	.085	.081	.076	.072	.068
9	.088	.082	.077	.072	.067	.063	.059	.055	.052	.048
10	.067	.062	.058	.054	.050	.046	.043	.040	.037	.035
11	.051	.047	.043	.040	.037	.034	.031	.029	.027	.025
12	.039	.036	.033	.030	.027	.025	.023	.021	.019	.018
13	.030	.027	.025	.022	.020	.018	.017	.015	.014	.013
14	.023	.021	.018	.017	.015	.014	.012	.011	.010	.009
15	.017	.016	.014	.012	.011	.010	.009	.008	.007	.006
16	.013	.012	.010	.009	.008	.007	.006	.006	.005	.005
17	.010	.009	.008	.007	.006	.005	.005	.004	.004	.003
18	.008	.007	.006	.005	.005	.004	.003	.003	.003	.002
19	.006	.005	.004	.004	.003	.003	.003	.002	.002	.002
20	.005	.004	.003	.003	.002	.002	.002	.002	.001	.001
21	.003	.003	.003	.002	.002	.002	.001	.001	.001	.001
22	.003	.002	.002	.002	.001	.001	.001	.001	.001	.001
23	.002	.002	.001	.001	.001	.001	.001	.001	.001	.000
24	.002	.001	.001	.001	.001	.001	.001	.000	.000	.000
25	.001	.001	.001	.001	.001	.000	.000	.000	.000	.000
30	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
40	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000