



UNIVERSITY OF ESWATINI

FIRST SEMESTER MAIN EXAMINATION PAPER, NOVEMBER 2019

FACULTY OF SOCIAL SCIENCES

DEPARTMENT OF ECONOMICS

COURSE CODE: ECO305

TITLE OF PAPER: PROJECT DEVELOPMENT AND FINANCIAL
ANALYSIS

TIME ALLOWED: 2 HOURS

Instructions

1. This paper consists of Section (A) and (B).
2. Section A is compulsory.
3. Answer any two questions from Section B.

Special Requirements

Scientific calculator

Additional Material (s)

1. Discounting Tables

Candidates may complete the front cover of their answer book when instructed by the Chief Invigilator and sign their examination attendance cards but must NOT write anything else until the start of the examination period is announced.

No electronic devices capable of storing and retrieving text, including electronic dictionaries and any form of foreign material may be used while in the examination room.

DO NOT turn examination paper over until instructed to do so.

SECTION A

Question 1: This Question is Compulsory

- a) What is the role of investment appraisal? [10 marks]
- b) What questions are addressed by an integrated investment appraisal framework? [15 marks]
- c) The project evaluation process is “cyclic”, explain the meaning of the statement and hence list without discussing the various phases of the project life cycle. [10 marks]
- d) The payback period has the advantage of being used as an initial screening device. Of what help is this to the project analyst. [2 marks]
- e) The underlying theory of discounted cash-flow techniques (DCF) is rooted in the acknowledgement of the importance of the “time value of money” and hence discounting. Explain why and how these two concepts are essential in investment appraisal [5 marks]
- f) Discuss the sources of conflict between the Net present Value (NPV) method and the Internal rate of return (IRR). Where the two methods give conflicting results, which technique should be followed and why? [8 marks]

Question 2

- a) The Net present value criterion may be used within three contexts, namely: accept-reject, ranking, and mutual exclusion. Explain clearly how the technique is used within these contexts. [6 marks]
- b) What are the four components/elements of a project that are useful in determining its desirability? [4 marks]
- c) Consider two projects whose cash flows are as outlined in the table below:

Project	A	B
Year	Cash flow	Cash flow
0	(E35000)	(E35000)
1	20000	10000
2	15000	10000
3	10000	15000
4	10000	20000

Determine the Return on Capital Employed (ROCE) for each of the two projects, and state which project would be most preferred.

- d) What are the advantages of the ROCE method? [10 marks]
[5 marks]

Question 3

- a) Given the goals of firm value and shareholder wealth maximization, we have stressed the importance of net present value (NPV). And yet, many financial decision-makers at some of the most prominent firms in the world continue to use less desirable measures such as the payback period and the average accounting return (AAR). Why do you think this is the case? [5 marks]

- b) Jansen Medical Clinic is investigating the possibility of investing in new X-Ray and blood analysis equipment. The after-tax cash inflows for the two independent investment projects are as follows:

<u>Year</u>	<u>X-Ray Equipment</u>	<u>Blood Equipment</u>	<u>Analysis</u>
1	E120,000	E20,000	
2	60,000	20,000	
3	80,000	120,000	
4	40,000	160,000	
5	20,000	180,000	

The cash flows for the X-Ray machine decline over time due to expected increases in operating and maintenance costs. The cash flows for blood analysis are expected to increase as word is spread that the clinic is performing these new services. Both projects require an initial investment of E200,000. In both cases, assume the equipment has a life of five years, with no salvage value.

Required:

- i. Assuming a discount rate of 12 percent, compute the net present value of each piece of equipment. [10 marks]
- ii. Compute the payback period for each item. Assume that the manager of the clinic accepts only projects with a payback period of three years or less. Offer some reasons why this may be a rational strategy even though the NPV computed in Requirement 1 may indicate otherwise. [10 marks]

Question 4

The marketing department of Basic Solutions Investments has estimated that output for its new product will be 15,000 units per year. The selling price will be E15 per unit and the fixed costs are E30,000 while its variable costs are E5. The management has approached you for advice on whether they should launch the new product or not.

(a) As an analyst, compute the company's breakeven point and calculate the amount of profit /loss for the company. [5 marks]

(b) Assume you are in the business of producing/publishing textbooks, and are currently considering producing a textbook for high schools in Swaziland. Your investigations indicate that the fixed costs associated with such a project are E40,000, the variable costs are E1.20 per book and you can only sell the book at E2.00 per copy. You have also found that, given the existence of other producers, you can also sell no more than 40, 000 copies. Using Break-Even analysis, determine if you should publish this textbook. Use diagrams to illustrate your answer. [10 marks]

(c) What are the limitations of Break-Even analysis as an investment decision making tool? [10 marks]

Present Value Table

Present value of 1 i.e. $(1 + r)^{-n}$

Where r = discount rate
 n = number of periods until payment

Periods (n)	Discount rate (r)										
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	1
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826	2
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751	3
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683	4
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621	5
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564	6
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513	7
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467	8
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424	9
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386	10
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350	11
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319	12
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290	13
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263	14
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239	15
(n)	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833	1
2	0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694	2
3	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579	3
4	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482	4
5	0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402	5
6	0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335	6
7	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279	7
8	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233	8
9	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194	9
10	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162	10
11	0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135	11
12	0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112	12
13	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093	13
14	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078	14
15	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.074	0.065	15

Annuity Table

Present value of an annuity of 1 i.e. $\frac{1 - (1 + r)^{-n}}{r}$

Where r = discount rate
 n = number of periods

Periods (n)	Discount rate (r)										
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	1
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736	2
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487	3
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170	4
5	4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791	5
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355	6
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868	7
8	7.652	7.325	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335	8
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759	9
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145	10
11	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495	11
12	11.255	10.575	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814	12
13	12.134	11.348	10.635	9.986	9.394	8.853	8.358	7.904	7.487	7.103	13
14	13.004	12.106	11.296	10.563	9.899	9.295	8.745	8.244	7.786	7.367	14
15	13.865	12.849	11.938	11.118	10.380	9.712	9.108	8.559	8.061	7.606	15
(n)	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833	1
2	1.713	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528	2
3	2.444	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106	3
4	3.102	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589	4
5	3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991	5
6	4.231	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326	6
7	4.712	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605	7
8	5.146	4.968	4.799	4.639	4.487	4.344	4.207	4.078	3.954	3.837	8
9	5.537	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031	9
10	5.889	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.192	10
11	6.207	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.486	4.327	11
12	6.492	6.194	5.918	5.660	5.421	5.197	4.988	4.793	4.611	4.439	12
13	6.750	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533	13
14	6.982	6.628	6.302	6.002	5.724	5.468	5.229	5.008	4.802	4.611	14
15	7.191	6.811	6.462	6.142	5.847	5.575	5.324	5.092	4.876	4.675	15