

UNIVERSITY OF SWAZILAND  
FACULTY OF SOCIAL SCIENCE  
DEPARTMENT OF ECONOMICS

MAIN EXAMINATION PAPER: DECEMBER 2014

TITLE OF PAPER: PROJECT DEVELOPMENT AND FINANCIAL ANALYSIS  
COURSE CODE: ECON 308  
TIME ALLOWED: THREE (3) HOURS

INSTRUCTIONS:

1. Answer Any Four (4) Questions,
2. The Relevant Annuity tables are provided

DO NOT OPEN THIS QUESTION PAPER UNTIL THE NVIGILATOR  
HAS GRANTED PERMISSION.

### Question 1

Write explanatory notes on any five of the following concepts

- i) The major differences between the NPV and IRR methods
  - ii) Contingent projects and mutually exclusive projects
  - iii) Sensitivity Analysis
  - iv) Time value of money
  - v) Numeric and non-numeric models
  - vi) Project and programme
- [5 marks each]

### Question 2

- a) What are the main features of the Critical Path Method (CPM) as a project planning and control technique? [5 marks]
- b) "Projects are a necessary ingredient to planning, and so is planning to projects", explain the logic of this statement. [5 marks]
- c) What is the project life cycle? Discuss the various phases of the project life cycle and explain why the first stage is regarded as an integral part of project planning? [15 marks]

### Question 3

- a) Justify the case for project analysis and appraisal as part of the wider framework of project planning and management. [10 marks]

- b) A firm is considering buying a jet aircraft, and may choose between a Mistrale and a Giselle. It expects the benefits of either aircraft to be E300, 000 a year for years 1-3 and E250, 000 a year for 4 & 5.

The costs of each aircraft are:

	<u>Giselle</u>	<u>Mistrale</u>
Purchase price	E250, 000	E150, 000
Annual running costs	E200, 000	E220, 000
Major overhaul - year 3	E100, 000	-
-years 2 & 4	-	E50, 000
Disposal proceeds (year 5)	E75, 000	50, 000

The firm estimates its costs of capital at 10%. Using the NPV method,

Which aircraft should be purchased? (Your answer should be supported by appropriate calculations) [15 marks]

- c) A firm is reviewing an investment opportunity using the NPV criterion. It expects that it will have to invest E2 million at the start of the project. There will also be clearance costs at the end of the project (year 6) of E500, 000.

Cash flows of the project (in E' 000) are expected to be:

<u>Year</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Sales revenue	1,000	1, 250	1, 400	1, 500	1, 800
Operating costs	650	600	600	625	750

**Required**

If the firm requires a return of 20% on investment, should the project be undertaken? [15 marks]

**Question 4**

- a) A company makes a product which sells for E15, while the variable cost per unit is E5, which covers labour and material. The fixed cost total is E75, 000 per annum which covers all the overhead costs. Using Break Even Analysis:
- i) Calculate the break even point and draw diagrams to show all the costs and break even point. [10 marks]
- ii) Assume the company is anticipating to produce 12,000 units, would you advise it to make this investment? Justify your answer by determining either a loss or profit associated with this amount of investment. [5 marks]
- b) What kinds of projects are best suited to break even analysis? What are the shortcomings of this technique? [10 marks]

**Question 5**

- a) A firm is considering a proposal to manufacture widgets. There are two possible ways of entering the market.

**Proposal 1**

Develop a new factory. This will cost E2,500,000. Other cashflows are:-

Year	1	2	3	4	5
Sales	1000	1500	2000	4000	6000
Other costs	750	1000	1500	1000	1200

**Proposal 2**

Buy an established company. This will have a cost of E4,000,000

Year	1	2	3	4	5
Sales	2000	2500	2750	4000	6000
Other costs	1250	1200	1400	1000	1200

The firm estimates its cost of capital at 8%. Which proposal (if either) should be accepted? Use the net present value method. [18 marks]

- b) Discuss the disadvantages of the Payback Period Method (PBP), and explain what improvement the discounted PBP brings to the effectiveness of this measure? [7 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	.882	.877	.873	.869	.865	.861	.855	.847	.840	.833
3	.863	.859	.853	.849	.845	.841	.834	.826	.819	.812
4	.844	.836	.833	.829	.825	.821	.813	.805	.798	.791
5	.825	.816	.813	.809	.805	.801	.793	.785	.778	.771
6	.806	.796	.793	.789	.785	.781	.773	.765	.758	.751
7	.787	.777	.774	.770	.766	.762	.754	.746	.739	.732
8	.768	.758	.755	.751	.747	.743	.735	.727	.720	.713
9	.749	.739	.736	.732	.728	.724	.716	.708	.701	.694
10	.730	.720	.717	.713	.709	.705	.697	.689	.682	.675
11	.711	.701	.698	.694	.690	.686	.678	.670	.663	.656
12	.692	.682	.679	.675	.671	.667	.659	.651	.644	.637
13	.673	.663	.660	.656	.652	.648	.640	.632	.625	.618
14	.654	.644	.641	.637	.633	.629	.621	.613	.606	.599
15	.635	.625	.622	.618	.614	.610	.602	.594	.587	.580
16	.616	.606	.603	.599	.595	.591	.583	.575	.568	.561
17	.597	.587	.584	.580	.576	.572	.564	.556	.549	.542
18	.578	.568	.565	.561	.557	.553	.545	.537	.530	.523
19	.559	.549	.546	.542	.538	.534	.526	.518	.511	.504
20	.540	.530	.527	.523	.519	.515	.507	.499	.492	.485
21	.521	.511	.508	.504	.500	.496	.488	.480	.473	.466
22	.502	.492	.489	.485	.481	.477	.469	.461	.454	.447
23	.483	.473	.470	.466	.462	.458	.450	.442	.435	.428
24	.464	.454	.451	.447	.443	.439	.431	.423	.416	.409
25	.445	.435	.432	.428	.424	.420	.412	.404	.397	.390
30	.404	.393	.390	.386	.382	.378	.370	.362	.355	.348
40	.315	.303	.300	.296	.292	.288	.280	.272	.265	.258
50	.230	.217	.214	.210	.206	.202	.194	.186	.179	.172

# PRESENT VALUE OF \$1 (continued)

n	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

  

n	31%	32%	33%	34%	35%	36%	37%	38%	39%	40%
1	.763	.758	.752	.746	.741	.735	.730	.725	.719	.714
2	.623	.614	.605	.597	.589	.581	.573	.565	.558	.550
3	.495	.483	.472	.462	.452	.442	.433	.423	.414	.404
4	.390	.379	.368	.357	.346	.335	.324	.313	.303	.292
5	.329	.319	.308	.297	.286	.275	.264	.253	.242	.231
6	.278	.268	.257	.246	.235	.224	.213	.202	.191	.180
7	.233	.223	.212	.201	.190	.179	.168	.157	.146	.135
8	.193	.183	.172	.161	.150	.139	.128	.117	.106	.095
9	.155	.145	.134	.123	.112	.101	.090	.079	.068	.057
10	.121	.111	.100	.089	.078	.067	.056	.045	.034	.023
11	.098	.088	.077	.066	.055	.044	.033	.022	.011	.000
12	.081	.071	.060	.049	.038	.027	.016	.005	.000	.000
13	.067	.057	.046	.035	.024	.013	.002	.000	.000	.000
14	.055	.045	.034	.023	.012	.001	.000	.000	.000	.000
15	.045	.035	.024	.013	.002	.000	.000	.000	.000	.000
16	.037	.027	.016	.005	.000	.000	.000	.000	.000	.000
17	.030	.020	.009	.000	.000	.000	.000	.000	.000	.000
18	.024	.014	.003	.000	.000	.000	.000	.000	.000	.000
19	.019	.009	.000	.000	.000	.000	.000	.000	.000	.000
20	.015	.006	.000	.000	.000	.000	.000	.000	.000	.000
21	.012	.004	.000	.000	.000	.000	.000	.000	.000	.000
22	.009	.003	.000	.000	.000	.000	.000	.000	.000	.000
23	.007	.002	.000	.000	.000	.000	.000	.000	.000	.000
24	.005	.001	.000	.000	.000	.000	.000	.000	.000	.000
25	.004	.000	.000	.000	.000	.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