

University of Ruhuna
2017/2018 Academic Year Master of Arts in Economics
2nd Semester End Examination - August 2019
MAE 5200 - Project Management

Answer any **five (05)** questions.
Calculators are allowed.

Time: 3 Hours

01. (i) Define the term 'project' and show three (03) main characteristics to be contained in the definition. (03 marks)
- (ii) Explain the key stages of the project life cycle. (05 marks)
- (iii) Briefly explain four (04) factors behind the recent increased attention on project management. (04 marks)
02. (i) What is meant by project ranking? Explain how projects are ranked based on absolute ranking and relative ranking using a hypothetical example. (03 marks)

- (ii) Net cash flows estimated for project X and Y are give below.

Time	Net Cash flow (Rs. Billions)	
	Project X	Project Y
0	-20000	-60000
1	-2400	3000
2	1000	5000
3	3000	10000
4	8000	10000
5	8000	15000
6	8000	18000
7	8000	20000
8	-	20000

- (a) Based on above information calculate the net present value (NPV) for each project based on 10% discount rate and select the best project among. (03 marks)
- (b) What is the best project if the discount rate is increased to 11%. (03 marks)
- (c) Calculate the internal Rate of Return (IRR) for each project and choose the best project based on IRR. (03 marks)

03. Market and demand analysis is a critical activity in project management (from a project manager's perspective briefly explain the key elements to be included in a market and demand analysis and explain how such analysis should be done. (12 marks)

04. (i). Explain what is meant by risk in a project. (03marks)

- (ii) Describe a technique that can be used for identify the risks of a project. (03 marks)

- (iii) Information relating to a project which the "AA" company is going start by making an initials investment of Rs. 50,000,000 is given below.

Time Period	Net Income (Rs. 000)	Probability
1	20000	0.2
	25000	0.3
	35000	0.5
2	50000	0.3
	100000	0.3
	120000	0.4

Give your opinion risk using coefficient of variation assuming a 10% cost of capital.

(06 marks)

05. Information relating to "AX" Project is given below.

Activity	Predecessor	Duration (weeks)		Cost per week Rs. 000	
		Normal	Crash	Normal	Crash
A	-	14	6	1600	2400
B	-	12	8	1500	2300
C	A	18	14	1600	2000
D	A	6	4	1000	1400
E	B	4	2	500	900
F	DE	8	6	600	800
G	CF	12	8	1100	1500
H	B	5	4	1000	1100

- (i) Draw the project network and indicate the critical path. (03 marks)

- (ii) Calculate the normal project duration and normal cost of the project. (03 marks)

- (iii) If the project is crashed fully.
(a) Calculate the project crashed duration. (03 marks)
(b) Calculate the project crashed cost. (03 marks)

06. Explain the main points (eight management) in the project planning. (12 marks)

07. What short notes on four (04) of the following topics.

- (i) SWOT Analysis
- (ii) Importance of network analysis
- (iii) Work Breakdown structure (WBS)
- (iv) Technical Analysis
- (v) Advantages and disadvantages of the internal rate of return (IRR)
- (vi) Monitoring and controlling of the project

(3 x 4 = 12 marks)

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Discount factors: Present value of \$1 to be received after t years $1/(1+r)^t$.

	Interest Rate per Year														
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%
1	.990	.980	.971	.962	.952	.943	.935	.926	.917	.909	.901	.893	.885	.877	.870
2	.980	.961	.943	.925	.907	.890	.873	.857	.842	.826	.812	.797	.783	.769	.756
3	.971	.942	.915	.889	.864	.840	.816	.794	.772	.751	.731	.712	.693	.675	.658
4	.961	.924	.888	.855	.823	.792	.763	.735	.708	.683	.659	.636	.613	.592	.572
5	.951	.906	.863	.822	.784	.747	.713	.681	.650	.621	.593	.567	.543	.519	.497
6	.942	.888	.837	.790	.746	.705	.666	.630	.596	.564	.535	.507	.480	.456	.432
7	.933	.871	.813	.760	.711	.665	.623	.583	.547	.513	.482	.452	.425	.400	.376
8	.923	.853	.789	.731	.677	.627	.582	.540	.502	.467	.434	.404	.376	.351	.327
9	.914	.837	.766	.703	.645	.592	.544	.500	.460	.424	.391	.361	.333	.308	.284
10	.905	.820	.744	.676	.614	.558	.508	.463	.422	.386	.352	.322	.295	.270	.247
11	.896	.804	.722	.650	.585	.527	.475	.429	.388	.350	.317	.287	.261	.237	.215
12	.887	.788	.701	.625	.557	.497	.444	.397	.356	.319	.286	.257	.231	.208	.187
13	.879	.773	.681	.601	.530	.469	.415	.368	.326	.290	.258	.229	.204	.182	.163
14	.870	.758	.661	.577	.505	.442	.388	.340	.299	.263	.232	.205	.181	.160	.141
15	.861	.743	.642	.555	.481	.417	.362	.315	.275	.239	.209	.183	.160	.140	.123
16	.853	.728	.623	.534	.458	.394	.339	.292	.252	.218	.188	.163	.141	.123	.107
17	.844	.714	.605	.513	.436	.371	.317	.270	.231	.198	.170	.146	.125	.108	.093
18	.836	.700	.587	.494	.416	.350	.296	.250	.212	.180	.153	.130	.111	.095	.081
19	.828	.686	.570	.475	.396	.331	.277	.232	.194	.164	.138	.116	.098	.083	.070
20	.820	.673	.554	.456	.377	.312	.258	.215	.178	.149	.124	.104	.087	.073	.061

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Discount factors: Present value of \$1 to be received after t years $1/(1+r)^t$.

	Interest Rate per Year														
	16%	17%	18%	19%	20%	21%	22%	23%	24%	25%	26%	27%	28%	29%	30%
1	.862	.855	.847	.840	.833	.826	.820	.813	.806	.800	.794	.787	.781	.775	.769
2	.743	.731	.718	.706	.694	.683	.672	.661	.650	.640	.630	.620	.610	.601	.592
3	.641	.624	.609	.593	.579	.564	.551	.537	.524	.512	.500	.488	.477	.466	.455
4	.552	.534	.516	.499	.482	.467	.451	.437	.423	.410	.397	.384	.373	.361	.350
5	.476	.456	.437	.419	.402	.386	.370	.355	.341	.328	.315	.303	.291	.280	.269
6	.410	.390	.370	.352	.335	.319	.303	.289	.275	.262	.250	.238	.227	.217	.207
7	.354	.333	.314	.296	.279	.263	.249	.235	.222	.210	.198	.188	.178	.168	.159
8	.305	.285	.266	.249	.233	.218	.204	.191	.179	.168	.157	.148	.139	.130	.123
9	.263	.243	.225	.209	.194	.180	.167	.155	.144	.134	.125	.116	.108	.101	.094
10	.227	.208	.191	.176	.162	.149	.137	.126	.116	.107	.099	.092	.085	.078	.073
11	.195	.178	.162	.148	.135	.123	.112	.103	.094	.086	.079	.072	.066	.061	.056
12	.168	.152	.137	.124	.112	.102	.092	.083	.076	.069	.062	.057	.052	.047	.043
13	.145	.130	.116	.104	.093	.084	.075	.068	.061	.055	.050	.045	.040	.037	.033
14	.125	.111	.099	.088	.078	.069	.062	.055	.049	.044	.039	.035	.032	.028	.025
15	.108	.095	.084	.074	.065	.057	.051	.045	.040	.035	.031	.028	.025	.022	.020
16	.093	.081	.071	.062	.054	.047	.042	.036	.032	.028	.025	.022	.019	.017	.015
17	.080	.069	.060	.052	.045	.039	.034	.030	.026	.023	.020	.017	.015	.013	.012
18	.069	.059	.051	.044	.038	.032	.028	.024	.021	.018	.016	.014	.012	.010	.009
19	.060	.051	.043	.037	.031	.027	.023	.020	.017	.014	.012	.011	.009	.008	.007
20	.051	.043	.037	.031	.026	.022	.019	.016	.014	.012	.010	.008	.007	.006	.005