UNIVERSITY OF RUHUNA

Master of Arts in Economics
2nd Semester Examination – April 2017

MAE 5200 - Project Management
Answer any **Five (05)** questions.

(Calculators are allowed.)

Time: **03 Hours**

01.

    i.   Define the term 'Project' and list unique characteristics associated with a Project.
        (04 Marks)

    ii.   Briefly explain at least four reasons for the recent increased attention on Project management.
        (04 Marks)

    iii.   Define project management triangle (Triple constraints) and briefly explain its key components.
        (04 Marks)
        (Total 12 Marks)

02.

    i.   Briefly explain the key elements contained in a project scope statement.
        (04 Marks)

    ii.   What is scope creep and explain how it can affect the implementation of projects.
        (04 Marks)

    iii.   Briefly explain the key stages in the project life cycle.
        (04 marks)
        (Total 12 Marks)

03.

    i.   Describe the term 'Work Breakdown Structure' using an example and discuss its importance in project management.
        (04 Marks)

    ii.   Explain how a work breakdown structure differ from a network diagram.
        (04 Marks)

    iii.   Draw a network diagram for a hypothetical project composed of around 5-7 activities and show how to calculate the project duration.
        (04 marks)
        (Total 12 Marks)

04.

i. Briefly explain at least four guidelines for making better cost/time estimates.

(04 Marks)

ii. Describe the term 'Responsibility Matrix' and explain how it can be useful in managing project.

(04 marks)

iii. Discuss why it is sometime required to reduce the project duration and calculate the cost slopes for the activities given in the following table.

Description	Normal Time (Weeks)	Crash Time (Weeks)	Normal Cost ('000)	Crash Cost ('000)
Pour foundation	3	2	700	900
Construction of walls	4	3	300	450
Construction of Roof	4	2	1200	1400
Fixing Windows	1	1	400	400
Fixing Doors	1	1	300	300
Wiring	3	1	200	400
Plastering	2	1	300	450
Fixtures	1	1	600	600
Painting	3	2	500	625
Cleanup	1	1	100	100

(04 Marks)
(Total 12 Marks)

05.

i. Briefly explain four potential responses for risks that may be encountered during a project.

(04 Marks)

ii. Discuss why scheduling key resources in a project is important..

(04 marks)

iii. Explain the following concepts using graphical illustrations where possible.
   a) Project closure Check-list
   b) Risk Profile
   c) Project Priority Matrix
   d) Gantt Chart

(04 marks)
(Total 12 Marks)

06.

  i.   Explain What is meant by risk in a project.

       (03 Marks)

  ii. Explain a technique for minimizing project risk.

       (03 Marks)

  iii. Information relating to a project which the XY company is going start by making an initial investment of 50,000,000/= is given below. Its expected net income is connected with the probability.

Time Period	Net income Rs. '000'	Probability
1	15000	0.2
	20000	0.3
	25000	0.5
2	50000	0.3
	75000	0.3
	100000	0.4

       Give your on risk using coefficient of Variation **assuming** a 10% cost of capital.

       (06 Marks)
       (Total 12 Marks)

07.   Information relating to RTS project is given below.

Activity	Predecessor	Expected duration (Weeks)	Expected cost per week (Rs. "000")
A	-	2	50
B	A	10	60
C	A	4	100
D	A	5	150
E	B	5	60
F	C	8	75
G	D	8	200
H	EF	4	50
I	HG	4	100

  i.   Draw project network and find the critical path.

       (03 Marks)

  ii. Calculate the minimum duration of the project.

       (03 Marks)

  iii. Calculate the cost assuming early start and early finish..

       (03 Marks)

  iv. Calculate the cost assuming late start and late finish.

       (03 Marks)
       (Total 12 Marks)

08.

   i.   Briefly explain the key stages in the project life cycle.

                              (04 Marks)

   ii.   What should be the role of project manager in the project manager process? Explain how the skills that should be possessed by a project manager affect the success of the project..

                              (04 Marks)

   iii. Explain, using an example, how SWOT analysis can be in project management.

                              (04 Marks)

                          (Total 12 Marks)

09.

   i.   Briefly explain project Ranking and 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 A and b are given below.

Time	Net Cash Flow (Rs. Billions)	
	Project A	Project B
0	-300	-405
1	-387	134
2	-193	134
3	-100	134
4	500	134
5	500	134
6	850	134
7	100	134

     a) Based on above information, calculate the net present value (NPV) for each project based on a 12% discount rate and the best project among them.

     b) What is your decision if the discount rate is increased to 14%?

     c) Calculate the internal rate of return (IRR) for above projects and choose the best project among them.

                              (09 Marks)

                          (Total 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

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