UNIVERSITY OF RUHUNA

Faculty of Engineering

End-Semester 6 Examination in Engineering: December 2015

Module Number: IS6203   Module Name: Entrepreneurship and Project Management

[Three hours]

[Answer **all questions**, each question carries 10 marks]

Q1.   Select the most appropriate answer for each question and write down the answer in the "answer script".

[Each sub question carries 1 Mark]

i) Part-time entrepreneurship has an additional advantage over starting up a company full-time in that:
   A) it is a much lower risk for the entrepreneur.
   B) it doesn't require a business plan.
   C) the entrepreneur can change products and markets more easily.
   D) the entrepreneur doesn't need to know the industry as well.

ii) Some small businesses create innovations _____ by spotting opportunities on which to capitalize.
   A) responsibly
   B) compassionately
   C) reactively
   D) proactively

iii) A business plan for the small business owner:
   A) is of relatively little importance due to the dynamic nature of the marketplace.
   B) is synonymous with the marketing plan.
   C) tends to stress how the entrepreneur will operate rather than detailing what he/she wants to accomplish.
   D) contains both a marketing plan and a financial plan.

iv) The _____ is built on the basic accounting equation: Assets = Liabilities + Owner's Equity.
   A) income statement
   B) sources and uses of funds statement
   C) balance sheet
   D) cash budget

v) A technique that allows the small business owner to perform financial analysis by understanding the relationship between two accounting elements is called:
A) creating the pro forma.
B) budgeting.
C) break-even analysis.
D) ratio analysis.

vi) Factors that may cause project management to fail include
A) wrong project manager.
B) lack or misuse of project management techniques.
C) inadequate rationale, objectives, tasks, and goals.
D) all of the above.

vii) A hierarchical structure of potential risk sources that can be used effectively to structure, identify, and understand risks best defines
A) opportunity breakdown structure.
B) project work breakdown structure.
C) risk breakdown structure.
D) risk iteration structure.

viii) What is the late start time for Activity B given the activity times and precedence requirements shown in the table?

Activity	Time	Predecessor
A	5	--
B	8	A
C	4	A
D	5	B, C

A) 18
B) 9
C) 13
D) 5

ix) Which of these approaches will **NOT** accelerate the completion of a project?
A) Improve the productivity of existing project resources.
B) Increase the bureaucratic oversight.
C) Improve the working method.
D) Increase the quantity of personnel and equipment.

x) A 14-week construction activity requires a crane that rents for Rs. 1,000 per week and a crew of general laborers that costs Rs. 5,000 per week. In order to complete this activity within 10 weeks, you must hire additional general laborers at a cost of Rs. 2,000 per week. What is the slope for this activity?

    A) Rs. 0 per week

    B) Rs. 1,000 per week

    C) Rs. 2,000 per week

    D) Rs. 6,000 per week

Q2. i) One of the few thorough studies on entrepreneurial characteristics was conducted between 1987 and 2002 by Walter Kuemmerle, an Associate Professor at Harvard Business School, who examined more than fifty start-up enterprises in twenty countries and across all industries. Some were successful; others were not. From this mixed bag Kuemmerle distilled five characteristics of successful entrepreneurs, a list he views as a litmus test for people who want to start their own business. He found that those characteristics are firm across industries and countries.

List those five characteristics of successful entrepreneurs, which were identified by Kuemmerle, and discuss them in brief.

[5 Marks]

ii) Project Management (PM) has become one of the main components of standard undergraduate engineering programs offered at most Australian universities. It is also one of the key abilities of a professional engineer as stipulated by Engineers Australia's Stage 1 Competency Standard. However, details regarding specific PM knowledge areas that engineers, especially at graduate or junior levels, should possess are largely unavailable. Such limitations also mean that the structuring of an existing Engineering Project Management (EPM) course would be based on a less informed decision. To cope with this limitation, Kriengsak Panuwatwanich of Griffith University, Gold Coast, Australia, Rodney A. Stewart of Griffith University, Gold Coast, Australia and Kali Prasad Nepal of Victoria University, Melbourne, Australia have conducted a research, named "Project management skills for engineers: industry perceptions and implications for engineering project management course", to provide a better understanding of the critical PM areas based on the input from industry practitioners. The results from a survey of 30 practitioners showed certain PM knowledge areas that engineers should possess along with their perceived importance and perceived skills comparison.

You are required to discuss those Project Management Knowledge areas that engineers should possess and briefly analyze their perceived importance as per the result showed in the said research.

[5 Marks]

Q3. i) Entrepreneurs don't fail—the venture fails. Failure is a possibility for all entrepreneurs and it needs to have perspectives. About 52% of new companies fail within 5 years. Entrepreneurs are not paralyzed by the prospect of failure. Failure is a natural part of the creative process. Successful entrepreneurs learn to fail *intelligently*.

What does it mean for entrepreneurs to "fail intelligently?"

[5 Marks]

ii) What can an entrepreneur do to avoid the failure of his/her business? Discuss at least five actions they can take?

[3 Marks]

iii) What advice would you offer an entrepreneurial friend who has just suffered a business failure?

[2 Marks]

Q4. i) What is the entrepreneurial "secret" for creating value in the marketplace? In reality, the "secret" is no secret at all: It is applying creativity and innovation to solve problems and to exploit opportunities that people face every day.

What is the difference between creativity and innovation in entrepreneurship?

[3 Marks]

ii) "Creativity doesn't just happen in organizations; entrepreneurs must establish an environment in which creativity can flourish—for themselves and for their workers. New ideas are fragile creations, but the right company culture can encourage people to develop and cultivate them. Ensuring that workers have the freedom and the incentive to be creative is one of the best ways to achieve innovation".

What are your suggestions to create a culture of innovation which enables entrepreneurs to stimulate their own creativity and encourage it among workers?

[3 Marks]

iii) "An effective marketing program depends on a clear, concise definition of the firm's target customers." How is the target market important to the small business? What does this concept signify about changes in marketing?

[2 Marks]

iv) "It is important for entrepreneurs to develop financial plans for their businesses." Identify and explain two profitability ratios a small business owner can use to measure how effectively he/she is managing the business.

[2 Marks]

Q5. i) "Project management is no longer a special-need management. It is rapidly becoming a standard way of doing business." Discuss importance of successful project management to an organization and to you.

[2 Marks]

ii) When a risk event is identified and assessed, a decision must be made concerning which response is appropriate for the specific event.

Name classification of responses to risks identified and assessed.

[1 Mark]

iii) Galle Creative Products (Pvt) Limited has decided to produce a Christmas Toy by the year end 2015. The following information has been given for the "Christmas Toy Project."

Act. ID	Description	Predecessor	Optm. (a)	Most likely (m)	Pess. (b)
1	Design package	None	6	12	24
2	Design product	1	16	19	28
3	Build package	1	4	7	10
4	Secure patent	2	21	30	39
5	Build product	2	17	29	47
6	Paint	3, 4, 5	4	7	10
7	Test market	6	13	16	19

a) Compute the expected time for each activity.

[1 Mark]

b) Draw a Network Diagram using "AON" method and mark the Critical Path.

[2 Marks]

c) Compute the variance for each activity.

[1 Mark]

d) Compute the expected project duration.

[1 Mark]

e) What is the probability of completing the project by day 93?

[1 Mark]

f) Based on the above answer what will be your reactions as a typical project manager?

[1 Mark]

Q6. i) Managers have several effective methods for crashing specific project activities. Those methods could be different from each other when resources are not constrained and when resources are constrained.

Briefly explain three effective methods for crashing project activities when resources are not constrained.

[3 Marks]

ii) The heir to the throne was due 56 days from now and the first-time father had a serious construction project on his hands converting his man cave into a nursery. The seven activities, their normal and expedited times (in days) and costs appear in the table.

Activity Label	Normal time (days)	Crash time (days)	Normal Cost (Rs.)	Crash Cost (Rs.)	Predecessor Activities
A	5	3	500	1100	
B	18	15	900	2300	A
C	12	9	2500	3000	A
D	9	7	500	650	B
E	15	12	3000	5000	B
F	12	10	4000	5000	C, D
G	20	15	3600	4800	E, F

a) What is the minimum cost to ensure that this project is completed in 56 days? Which activities should be reduced and by how many days?

[5 Marks]

b) If following additional information is given, calculate total cost of the project at each project duration and explain what is the optimum project duration, which gives the maximum benefit to father?

Project Duration (Days)	Indirect Cost (Rs.)
64	12,800
63	12,600
62	12,400
61	12,200
60	12,000
59	11,800
58	11,600
57	11,400
56	11,200

[2 Marks]

CUMULATIVE PROBABILITIES OF THE STANDARD NORMAL DISTRIBUTION
Entry is area $1 - \alpha$ under the standard normal curve from $-\infty$ to $z(1 - \alpha)$

z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
.0	.500	.504	.508	.512	.516	.519	.523	.527	.531	.553
.1	.539	.543	.547	.551	.555	.559	.563	.567	.571	.575
.2	.579	.583	.587	.591	.594	.598	.602	.606	.610	.614
.3	.617	.621	.625	.629	.633	.636	.640	.644	.648	.651
.4	.655	.659	.662	.666	.670	.673	.677	.680	.684	.687
.5	.691	.695	.698	.701	.705	.708	.712	.715	.719	.722
.6	.725	.729	.732	.735	.738	.742	.745	.748	.751	.754
.7	.758	.761	.764	.767	.770	.773	.776	.779	.782	.785
.8	.788	.791	.793	.796	.799	.802	.805	.807	.810	.813
.9	.815	.818	.821	.823	.826	.828	.831	.834	.836	.838
1.0	.844	.843	.846	.848	.850	.853	.855	.857	.859	.862
1.1	.864	.866	.868	.870	.872	.874	.877	.879	.881	.833
1.2	.884	.886	.888	.890	.892	.894	.896	.898	.899	.901
1.3	.903	.904	.906	.908	.909	.911	.913	.914	.916	.917
1.4	.919	.920	.922	.923	.925	.926	.927	.929	.930	.931
1.5	.933	.934	.935	.937	.938	.939	.940	.941	.942	.944
1.6	.945	.946	.947	.948	.949	.950	.951	.952	.953	.954
1.7	.955	.956	.957	.958	.959	.959	.960	.961	.962	.963
1.8	.964	.964	.965	.966	.967	.967	.968	.969	.969	.970
1.9	.971	.971	.972	.973	.973	.974	.975	.975	.976	.976
2.0	.977	.977	.978	.978	.979	.979	.980	.980	.981	.981
2.1	.982	.982	.983	.983	.983	.984	.984	.985	.985	.985
2.2	.986	.986	.986	.987	.987	.987	.988	.988	.988	.989
2.3	.989	.989	.989	.990	.990	.990	.991	.991	.991	.991
2.4	.991	.992	.992	.992	.992	.992	.993	.993	.993	.993
2.5	.933	.994	.994	.994	.994	.994	.994	.994	.995	.995