UNIVERSITY OF RUHUNA

Faculty of Engineering

End-Semester 6 Examination in Engineering: November 2017

Module Number: IS6203   Module Name: Entrepreneurship and Project Management

[Three Hours]

[Answer all question, each question carries ten marks]

Q1   a)   Define the term 'entrepreneur' in your own words.

[2 Marks]

b)   List and explain six key characteristics of an entrepreneur.

[3 Marks]

c)   Briefly explain the reasons for entrepreneurs to start business.

[3 Marks]

d)   'Entrepreneurs are high risk takers'. Do you agree with this statement or not? Explain your answer.

[2 Marks]

Q2   a)   Briefly explain the term 'Innovation' in your words.

[2 Marks]

b)   What are the different types of innovation? Explain three of them briefly.

[5 Marks]

c)   Briefly explain the inter-relationships between innovation, entrepreneurship, and engineering science.

[3 Marks]

Q3   a)   Explain the necessity and importance of developing a business plan.

[5 Marks]

       b)   List down main sections of a business plan.

[3 Marks]

       c)   What are the key barriers towards entrepreneurship in Sri Lanka? Suggest strategies to overcome such obstacles.

[2 Marks]

Q4   a)   Briefly explain the term 'Project' in your words while explaining its characteristics.

[2 Marks]

       b)   Explain the main phases of project management.

[2 Marks]

       c)   Explain the concept of 'Work Breakdown Structure' by using an example from your engineering specialization.

[3 Marks]

       d)   Briefly explain the project managers' role.

[3 Marks]

Q5 a) The following information has been extracted from two projects A and B. Select the best project option using cost-benefit analysis.

Project A	Project B
Labour cost - $ 1350	Labour cost - $ 750
Stationary charges - $ 90	Stationary charges - $ 50
Training programme cost - $ 150	Training programme cost - $ 300
Construction down time cost - $ 850	Vehicle rent – $ 120
30% Sales increase - $ 3 000	House rent – $ 180
10% Employee productivity increase – $ 1 000	Construction down time cost - $ 500
Cost saving (due to in house designing) - $ 4 000	50% Sales increase - $ 2 900
	30% Employee productivity increase – $ 1 700

b) A project proposal aims to spend $ 100 000 on information technology and $ 20 000 per year to maintain it for four years. The return is $ 50 000 per year in terms of labour savings and extra revenue generated. At the end of the project, the equipment can be sell for $ 40 000. Consider the annual interest rate as 7%. Evaluate this project, using net present value method.

[5 Marks]

Q6. The activities associated with a project and related details are given in the following table.

Activity	Description	Normal Time (days)	Predecessor	Crash Time (days)	Normal Cost (Rs.)	Crash Cost (Rs.)
A	Dismantle pipe connections	2	-	1	1000	2000
B	Dismantle heater, closure, and floating front	3	A	2	800	1200
C	Remove tube bundle	5	B	3	500	1500
D	Clean bolts	4	B	2	2000	4000
E	Clean heater and floating head front	5	B	4	500	2500
F	Clean tube bundle	7	C	4	3000	6000
G	Clean shell	2	C	1	800	1400
H	Replace tube bundle	2	F,G	1	400	1200
I	Prepare shell pressure test	8	D,E,H	5	4200	6000
J	Prepare tube pressure test and reassemble	6	I	4	1000	4000

a) Draw a network diagram of a activities for the project.

[4 Marks]

b) Find the critical activities and the critical path.

[2 Marks]

c) Find the project completion time.

[1 Mark]

d) If client wants to reduce the project completion by 2 days, what is the minimum additional cost required?

[3 Marks]