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Family Name	
Given Names	
Student Number	
Teaching Period	Semester 1, 2017

FINAL EXAMINATION	DURATION
PRT551 – Project Management Risk and Reliability	Reading Time: 10 minutes
	Writing Time: 180 minutes

INSTRUCTIONS TO CANDIDATES

Please ensure that your name and student number are clearly indicated on your Answer Sheet and at the top of this examination paper.

1.1 The examination has 3 sections

Section A – Suggested Time: 40 min

Multiple Choice Questions: Answer ALL 40 questions on the Answer sheet provided in this examination paper and must be handed in with your answer booklet

Section B – Suggested Time: 70 min

Short Answer Questions: Answer 5 of 8 questions

Section C – Suggested Time: 70 min

Short Essay Questions: Answer ALL 3 questions

Section A must be answered directly onto the Multiple Choice Paper. Please ensure that your Name and Student Number are written clearly in the space provided at the top of this page.

Section B and Section C are to be answered in one booklet.

1.2 Note that questions ARE NOT of equal value.

1.3 Read ALL questions carefully.

EXAM CONDITIONS

You may begin writing from the commencement of the examination session. The reading time indicated above is provided as a guide only.

This is a RESTRICTED OPEN BOOK examination

Any non-programmable calculator is permitted

No handwritten notes are permitted

Hard copy, unannotated English translation dictionary only

ADDITIONAL AUTHORISED MATERIALS	EXAMINATION MATERIALS TO BE SUPPLIED
No additional printed material is permitted	1 x 20 Page Book 1 x 4-Multiple Choice Answer Sheet 1 x Scrap Paper

Section B
Short Essay Questions
Total No of Marks for this section: 45

This section should be answered in the Answer Booklet provided.
Please note that only **5** of the **8** questions need to be answered. Answering more than **5** will not result in extra marks as only the first **5** you answer will be assessed.

Your answers should be about **one (1)** page in length.

All questions are worth 9 marks each for a total of 45 marks.
Suggested Time allocation for Section B: 70 minutes

Question 1 (9 marks)

- a. What is a project, and what are the main characteristics?
- b. How is the project different from what most people do in their day-to-day jobs?
- c. What is the triple constraint?

Question 2 (9 marks)

- a. Why is having a project schedule so important?
- b. How does the GANTT chart assist in determining the critical path for a project?

Question 3 (9 marks)

- a. Describe the different types of maintenance.
- b. Write down three of the seven Reliability Centred Maintenance basic questions.
- c. What is Failure mode, effect and criticality analysis?

Question 4 (9 marks)

- a. What is the purpose of the Lessons-Learned report?
- b. What are the main topics covered by this report?

Question 5 (9 marks)

- a. Describe practices that should be followed in directing and managing project execution.
- b. Why are deliverables such an important output of project execution?
- c. What are some of the typical challenges that project teams face during project execution?

Question 6 (9 marks)

- a. List the people who would attend a kick-off meeting.
- b. List the main topics that should be on the kick-off meeting agenda.

Question 7 (9 marks)

- a. What is quality assurance process, and how does it affect project execution?
- b. What are the tools and techniques used in performing quality assurance?

Question 8 (9 marks)

- a. What is the difference between Bottom-up and Top-down techniques of risk management?
- b. Select one technique from each group and make a comparative analysis of the two.

Section C
Case Study

Total Number of Marks for this section: 35

This section should be answered in the Answer Booklet provided.
All Questions in this section should be answered.

Marks for each question are indicated.
Suggested Time allocation for Section C: 70 minutes

Case Study: Robotic System Assembly Line

PBM Automotive has decided to implement a Robotic system in their assembly line. The project was approved based on Net Present Value analysis using the data given in Table 1:

Table 1: Yearly breakdown of cash flow for the first 5 years

Discount rate	5%				
Year	1	2	3	4	5
Costs (\$)	1,000,000	100,000	100,000	100,000	100,000
Benefits (\$)	0	200,000	400,000	500,000	500,000

The breakdown of the work carried out as part of the project is given in the table 2:

Table 2: Description of tasks and durations

Task	Time(Weeks)			
	Predecessor	Likely	Optimistic	Pessimistic
A. System design		6	5	7
B. Hardware purchase and delivery	A	4	3	6
C. Software specification	A	2	1	3
D. Hardware assembly and test	B	6	5	8
E. Software purchase and delivery	C	8	6	11
F. Hardware installation on site	D	8	7	9
G. Whole system test	E, F	2	1	3
H. User test	G	1	1	2

Question 1 (15 Marks)

- a Carry out NPV analysis and determine the Net Present Value. Show your results in the form of a table. **(12 Marks)**
- b Calculate the return on investment. **(3 marks)**

Question 2 (8 Marks)

- a Calculate the PERT weighted average time for each of the tasks listed Table 2. **(5 Marks)**
- b Explain the purpose of using PERT weighted average time. Describe any limitation in using this method. **(3 marks)**

Question 3 (12 Marks)

- a What is the purpose of a network diagram? What are the different diagramming methods that can be used? **(4 marks)**
- b Draw an activity on arrow (AoA) network diagram for the Task List. **(8 marks)**