**Section: A**

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| **Q1:** | **Question 1 Answer All 4 Multiple Choice Questions. (2 mark each. Total 8 marks)**  1(i) You are planning a new phone and is considering between 2 brands. Both brands offer a warranty period of 1 year but can be used for 4 years without any issues. There is a 2 years contract associated with the phone. You do not have a habit of changing phones often and will usually use it for an average of 3 years. What is the study period and service life? | **Mark (2)** |
|  | Study period is 2 years and service life is 4 years | |
|  | Study period is 3 years and service life is 1 year | |
|  | Study period is 2 years and service life is 1 year | |
|  | Study period is 3 years and service life is 4 years | |

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| **Q2:** | 1(ii) Tommy bought a second-hand car for $20,000 and has 2 years left on the road till scrap. There will not be any value left for the car during scrap. After driving for a year, he is curious how much his car is worth now with straight line depreciation method. He checked online and found it selling for $12,000. How much is the book value and market value? | **Mark (2)** |
|  | Book Value of $20,000 and Market Value of $12,000 | |
|  | Book Value of $10,000 and Market Value of $12,000 | |
|  | Book Value of $20,000 and Market Value of $0 | |
|  | Book Value of $12,000 and Market Value of $12,000 | |

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| **Q3:** | 1(iii) Handel is planning to use economic decision making steps in deciding whether to buy a house or rent a house. Which is the correct sequence below? | **Mark (2)** |
|  | Identify the options that he has first and draw the cash flow diagram for the options. Decide based on Future Worth which option would give the lowest value. | |
|  | Draw the cash flow diagram first and identify the options that he has. Decide based on Present Worth which option would give the highest value. | |
|  | Identify the options that he has first and draw the cash flow diagram for the options. Decide based on Present Worth which option would give the highest value. | |
|  | Draw the cash flow diagram first and identify the options that he has. Decide based on Future Worth which option would give the lowest value. | |

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| **Q4:** | 1(iv) GOOLE Pte Ltd started building a factory in Thailand in early 2010. The construction took 3 years and was ready in early 2013. The Thai Government has granted a zero tax incentive of 5 years from the time of construction. The tax will increase to 10% from the 6th year. In 2017, GOOLE reported a revenue before tax of $1 million. On their books they have $200,000 of depreciation for 2017. How much tax does GOOLE has to pay in 2017? | **Mark (2)** |
|  | $80,000 | |
|  | $100,000 | |
|  | $0 | |
|  | $200,000 | |

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**Section: B**

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| **Q5:** | **Question 2 [18 Marks]**  *Show all your workings clearly and round off all answers to two decimal places when necessary.*  National Water Works is looking into installing a large underground water sewage system across the country. Three mutually exclusive systems have been proposed and their present worth of costs and benefits are given in Table 2a. All numbers are in millions of Singapore dollars.  C:\Users\17046589\AppData\Roaming\Republic Poly\eQuest\_assessmentimages\_assessmentimg_1801828328_-810056132.jpeg  2a) Calculate the Benefit-Cost Ratio for System A (X). Identify the system with the highest Benefit-Cost Ratio. (3 marks) | **Mark (3)** |
|  |  | |
|  | Word Count: 27 | Max Words: 100 |

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| **Q6:** | 2b) The Incremental Benefit-Cost ratio analysis is conducted to identify the best system to invest on.  2b)(i) You selected System B as the baseline alternative. Justify your choice. (1 mark)  () | **Mark (1)** |

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| **Q7:** | 2b)(ii) Compare System C to System B, which system should be selected? Why? (4 marks)  2b)(iii) Complete the Incremental Benefit-Cost (B-C) Ratio analysis, out of the 3 systems, which system should the National Water Works select? Explain. (4 marks) | **Mark (8)** |
|  |  | |
|  | Word Count: 107 | Max Words: 200 |

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| **Q8:** | 2c) Table 2b below summarizes the differences between Public and Private Projects. Fill up the 4 blanks indicated as (A), (B), (C) and (D). (4 marks)  C:\Users\17046589\AppData\Roaming\Republic Poly\eQuest\_assessmentimages\_assessmentimg_78163855_-1958328482.jpeg  Funding for Public Projects, (A): ()  Funding for Private Projects, (B): ()  Selection Criteria for Public Projects, (C): ()  Selection Criteria for Private Projects, (D): () | **Mark (4)** |

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| **Q9:** | 2d) State TWO disadvantages of using Benefit-Cost analysis when evaluating public projects. (2 marks) | **Mark (2)** |
|  |  | |
|  | Word Count: 57 | Max Words: 100 |

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**Section: C**

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| **Q10:** | **Question 3 [18 marks]**  *Show all your workings clearly and round off all answers to two decimal places when necessary.*  STL bought a truck for $60,000. The useful life of the truck is 20 years, with a salvage value of $3,000 at the end of useful life.  3a) Assume that Declining Balance depreciation method is used and the book value of the forklift truck at the end of 2 years is $43,350.  3a)(i) Calculate the depreciation rate, R. (4 marks) 3a)(ii) Determine the depreciation amount for the truck at the end of first year. (2 marks) | **Mark (6)** |
|  |  | |
|  | Word Count: 56 | Max Words: 150 |

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| **Q11:** | 3b) Using 200% Declining Balance, another staff calculated the value of R to be 0.1. Determine the book value of the truck at the end of 10 years if 200% declining balance is used. (3 marks) | **Mark (3)** |
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|  | Word Count: 35 | Max Words: 100 |

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| **Q12:** | 3c) In the first operating year, the expected revenue generated from this truck is $32,000, at an incurred expense of $5,800, with a depreciation amount of $10,000. The corporate income tax is 19%.  3c)(i) Calculate the taxable income (2 marks) 3c)(ii) Calculate the amount of tax to be paid (2 marks) 3c)(iii) Calculate the net cash flow (2 marks) | **Mark (6)** |
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|  | Word Count: 52 | Max Words: 150 |

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| **Q13:** | 3d) Which depreciation method (Straight Line or Double Declining Balance) should STL use to calculate the company’s taxable income for the **first year**? Explain your answer. (3 marks) | **Mark (3)** |
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|  | Word Count: 21 | Max Words: 100 |

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**Section: D**

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| **Q14:** | **Question 4 [9 marks]**  *Show all your workings clearly and round off your answers to 2 decimal places.*  ABC Company produces 50,000 packets of Tea and 40,000 packets of Coffee per month. Table 4a below provides cost and other relevant information for the production of the two types of beverages. **The Total Overhead Cost for both types of beverages is $73,150**.  C:\Users\17046589\AppData\Roaming\Republic Poly\eQuest\_assessmentimages\_assessmentimg_1699971760_483644022.jpeg  Table 4b below shows the breakdown of the overhead cost and the corresponding activities involved.  C:\Users\17046589\AppData\Roaming\Republic Poly\eQuest\_assessmentimages\_assessmentimg_1699971760_-1122165846.jpeg  4a) Calculate the total cost per packet for Tea if ABC Company uses the **activity based costing** method to allocate the overhead cost. (7 marks) | **Mark (7)** |
|  |  | |
|  | Word Count: 55 | Max Words: 200 |

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| **Q15:** | 4b) From your understanding of the **conventional** and **activity based costing** methods, which one would you recommend for the allocation of the overhead cost? Explain. (2 marks) | **Mark (2)** |
|  |  | |
|  | Word Count: 26 | Max Words: 100 |

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**Section: E**

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| **Q16:** | **Question 5 [18 Marks]**  *Show all your workings clearly and round off all answers to two decimal places. MS Excel functions (e.g. NPV(),IRR()) are not acceptable as working.*  A construction company has been using its current crane truck for 7 years. The crane truck is now worth $45,500. Recently a new crane truck is available at $105,800. The company is planning to replace its current crane truck with a new crane truck.  It is estimated that the current crane truck will only be used for another 3 years. If a new crane truck is to replace the current one, it will also be used for another 3 years. Assume that the company’s MARR is 12% annually. Table 5a below summarizes other important information associated with the two crane trucks.  C:\Users\17046589\AppData\Roaming\Republic Poly\eQuest\_assessmentimages\_assessmentimg_1277555637_417482461.jpeg 5a) In general, give **two** reasons why a company needs to conduct a replacement analysis. (2 marks) | **Mark (2)** |
|  |  | |
|  | Word Count: 32 | Max Words: 100 |

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| **Q17:** | 5b) Identify the **challenger** and **defender** in this replacement analysis. Explain. (4 marks) | **Mark (4)** |
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|  | Word Count: 33 | Max Words: 150 |

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| **Q18:** | 5c) Assume that 150% Declining Balance depreciation method is used. Determine the book value of the new crane truck at the end of 3 years. (3 marks) | **Mark (3)** |
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|  | Word Count: 35 | Max Words: 100 |

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| **Q19:** | 5d) Assume that the market value of the new crane truck at the end of year 3 is $65,000.  5d)(i) Based on **opportunity cost approach**, work out the Equivalent Uniform Annual Cost (EUAC) for the new crane truck.  (4 marks) 5d)(ii) Given that the EUAC for the current crane truck is $22,015.65, should the construction company replace the current crane truck with the new crane truck? Explain. (2 marks) | **Mark (6)** |
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|  | Word Count: 44 | Max Words: 150 |

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| **Q20:** | 5e) In the above crane truck replacement analysis, what is the study period? Which assumption (co-terminated or repeatability assumption) should be used in the analysis? Explain. (3 marks) | **Mark (3)** |
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|  | Word Count: 27 | Max Words: 100 |

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| **Q21:** | **Question 6 [12 marks]**  *Show all your workings clearly and round off all answers to two decimal places. MS Excel functions (eg NPV(),IRR()) are not acceptable as workings.*  Adriana is considering an investment with the following estimated information given in Table 6a. There will be no salvage value for the investment at the end of the project.  C:\Users\17046589\AppData\Roaming\Republic Poly\eQuest\_assessmentimages\_assessmentimg_-1816978119_-1731748390.jpeg  However, she is worried that the feasibility of the investment might be sensitive to the 4 key factors: **Initial Investment, Annual Revenue, Annual Expense and Useful life**.  6a) She performed a sensitivity analysis to see how the Net Present Worth changes as each of the 4 factors changes. Table 6b below shows the results of the sensitivity analysis.  C:\Users\17046589\AppData\Roaming\Republic Poly\eQuest\_assessmentimages\_assessmentimg_-1816978119_794626489.jpeg  6a)(i) Without calculation, determine (A) as indicated in Table 6b. (1 mark) | **Mark (1)** |

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| **Q22:** | 6a)(ii) Calculate (B) as indicated in Table 6b. (5 marks) | **Mark (5)** |
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|  | Word Count: 28 | Max Words: 150 |

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| **Q23:** | 6b) Adriana plotted the sensitivity graph to show how the Net Present Worth changes as each of the 5 factors changes as shown in Figure 6a.  C:\Users\17046589\AppData\Roaming\Republic Poly\eQuest\_assessmentimages\_assessmentimg_1459669851_1065941789.jpeg  6b)(i) Which factor is more sensitive, **Annual Revenue or Annual Expenses**? Explain. (2 marks) | **Mark (2)** |
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|  | Word Count: 33 | Max Words: 100 |

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| **Q24:** | 6b)(ii) Adriana realized that the capital investment is $660,000 instead of the current estimate of $550,000. Based on the Spider Plot in Figure 6a, determine whether the investment will still be feasible if all the other factors remain unchanged. Explain clearly with workings. (4 marks) | **Mark (4)** |
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|  | Word Count: 34 | Max Words: 100 |

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| **Q25:** | **Question 7 [17 marks]**  *Show all your workings clearly and round off all answers to two decimal places. MS Excel functions (e.g. NPV(),IRR()) are not acceptable as working.*  HDI Incorporated is planning to build a new production line for the manufacturing of a new model. It is believed that, with the new production line, the annual production quantity will be 3,000 units. The initial capital to be invested at the end of year 2018 is $800,000. The production line is expected to run for 10 years from start 2019 until end 2028. At the end of the useful life, it has a salvage value of $90,000. Assume that for the first 5 years, the annual operating and maintenance cost is 8% of the annual sales revenue (equal end-of-year amount) generated from selling the products. Starting from year 6 till the end of the project, the annual operating and maintenance cost will have a constant increase of 1% of the annual sales revenue each year compared to the previous year. Table 7a below summarizes the useful information related to this project.  C:\Users\17046589\AppData\Roaming\Republic Poly\eQuest\_assessmentimages\_assessmentimg_-1728758597_-238826417.jpeg  7a) Considering the new production line project in HDI Incorporated, 7a)(i) Calculate Capital Recovery of the investment on the new production line. (3 marks) 7a)(ii) Based on **Annual Worth** method, determine the minimum unit selling price of the product that makes this investment worthwhile. (6 marks) | **Mark (9)** |
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|  | Word Count: 160 | Max Words: 300 |

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| **Q26:** | 7b) Assume that HDI Incorporated can sell the products at a unit price of $48. Determine the maximum amount of initial investment of the production line so that the company can achieve an Internal Rate of Return of 12% annually. Assume that all other information remains unchanged. (8 marks) | **Mark (8)** |
|  |  | |
|  | Word Count: 143 | Max Words: 300 |

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