Knowledge Questionnaire 9012

**77 Points**

**Specific outcome 1:** Pose questions, collect and organise data

**Assessment Criteria**

* Situations or issues that can be dealt with through statistical methods are identified correctly
* Variables contributing to a problem situation are identified and addressed in data gathering
* Appropriate and efficient methods are used to collect, record and organise data
* Data samples are of adequate size and are representative of the population
1. You are employed by a bus transport company. Your manager wants to find out how customers feel about the service in your company and what the company can do to improve the satisfaction of the customers. You have to do the research. Write down the aim of the research. (1)

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1. Determine the population group that you will target for your survey. (1)

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1. How big will your sample be? (1)

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1. Which of the following market segmentation factors will you have to take into account? List at least two and motivate why the factor will be important. (4)
* Geographic factors:
* Age
* Income bracket:
* Gender:
* Community and cultural beliefs

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1. How will you collect the information for your research project? (By telephone, mail, personal interview, etc.) (1)

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1. Draw up a list of at least six questions for your questionnaire. (6)

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1. List two things you must do when conducting the actual research. (2)

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1. If you need more information regarding market segmentation or names of people, where can you find more information? (1)

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**Specific Outcome 2:** Represent, analyse and interpret data using various techniques

**Assessment Criteria**

* Graphical representations and numerical summaries are consistent with the data, are clear and appropriate to the situation and target audience
* Different representations of aspects of the data are compared to take a position on the issue
* Calculations and the use of statistics are correct and appropriate to the problem
* Interpretations of statistics are justified and applied to answer questions about the problem
* New questions that arise from the modelling of the data are discussed
1. Explain frequency distribution. (1)

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1. Explain what is meant by range. (1)

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1. What is the purpose of a bar or column graph? (1)

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1. What is the purpose of a line chart? (1)

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1. Answer the questions regarding the following chart. (4)

Number of ice creams sold



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| How many ice creams were sold during January? |  |
| During which month were the most ice creams sold? |  |
| In which month were 70 ice creams sold? |  |
| What was the total number of ice creams sold for the period? |  |
| What is the range of the data set? |  |

1. What is the purpose of a pie chart? (1)

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| Shows the breakdown of a total |

1. Draw a pie chart for the following information. A total of 2000 replies were received. Use the pie below to help you. (3)

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| Which taxi route do you use every day? | Route A | 755 |
| Route B | 830 |
| Route C | 415 |

**Specific Outcome 2:** Represent, analyse and interpret data using various techniques. Use random events to explore and apply, probability concepts in simple life

* Data are gathered, organised, sorted and classified in a suitable manner for further processing and analysis.
* Experiments and simulations are chosen appropriately in terms of the situation to be investigated
* Probabilities are determined correctly
* Distinctions are correctly made between theoretical and experimental probabilities
* Predictions are based on validated experimental or theoretical probabilities.
* The outcomes of experiments and simulations are communicated clearly
1. Give the formula for mean. (1)

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1. What is median? (1)

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1. Explain mode. (1)

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1. What is the definition of probability? (2)

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1. What does mutually exclusive mean? (2)

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1. Explain independent events when you flip two coins. (2)

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1. What is the probability of winning the lottery 6/49, that is, picking the correct set of six numbers out of 49?. (2)

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1. For each situation, use a tree diagram to find the total number of outcomes. Do this on the following pages, one page per tree diagram. (33)
	1. Growing tulips, roses, or daisies in either pink, white, or yellow
	2. Taking a sculpture or woodworking class at either a school, a community centre, or a museum
	3. Sitting in a room with a sofa, a chair, a love seat or a recliner, in either a soft, hard, or medium firmness
	4. Music you are in charge of music for a party. You bring three cds: pop, jazz, and country. How many different ways can you play all three cds so that each one is played exactly once?
2. Calculate the probability of growing pink roses. (2)

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1. Calculate the probability of sitting in a room with a sofa of medium firmness. (2)

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