HURLSTONE AGRICULTURAL HIGH SCHOOL

GENERAL MATHEMATICS
2006
YEAR 12
ASSESSMENT TASK 1

EXAMINERS ~ S HACKETT, G RAWSON, Z PETHERS

GENERAL INSTRUCTIONS

- Reading Time – 3 minutes.
- Working Time – 40 MINUTES.
- Attempt **all** questions.
- **All** necessary working should be shown in every question.
- This paper contains three (3) questions worth 12 marks each.
- Marks may not be awarded for careless or badly arranged work.
- Board approved calculators may be used.
- **Answer each question in the space provided.**
- This examination paper must **NOT** be removed from the examination room.

STUDENT NAME: _____

TEACHER: _____

QUESTION 1

CIRCLE THE CORRECT ANSWER (1 mark each)

(a) Calculate the standard deviation of these scores:

13 15 14 11 10 6 21 19

A. 4.8 **B.** 7.4 **C.** 13.6 **D.** 6.5

(b) This stem-and-leaf plot shows the daily temperatures of a town (in ºC) over a 3-week period. Calculate the interquartile range of this data.

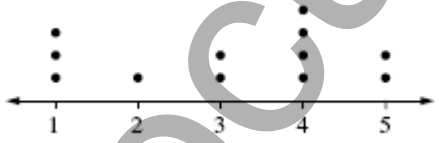
Stem	Leaf
0	9
1	0 2 4 5 5 6 7 9 9
2	0 1 3 4 6 6 6 7 9
3	1 2

A. 11 ºC **B.** 15 ºC **C.** 13 ºC **D.** 12 ºC

(c) A DVD manufacturer tests the quality of its product. What type of sample is most likely used?

A. random **B.** stratified **C.** simple **D.** systematic

(d) Find the median of the scores represented in this dot plot.

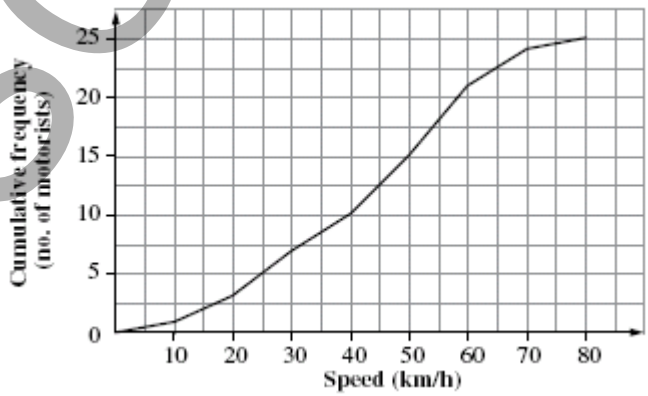


A. 3.08 **B.** 3.5 **C.** 3 **D.** 4

(e) Which of these is an example of discrete data?

A. eye colour **B.** dress size **C.** height of a person **D.** speed of a car

(f) The cumulative frequency graph below shows the speeds of motorists in a suburban street with a speed limit of 50km/h. How many motorists were speeding?



A. 15 **B.** 30 **C.** 25 **D.** 10

(g) Which of the following is ***not*** an example of categorical data?

A. hair colour **B.** population **C.** nationality **D.** religion

PROVIDE ANSWERS IN THE SPACE PROVIDED

(h) The heights of a sample of young gum trees are shown in the frequency table. (5 marks)

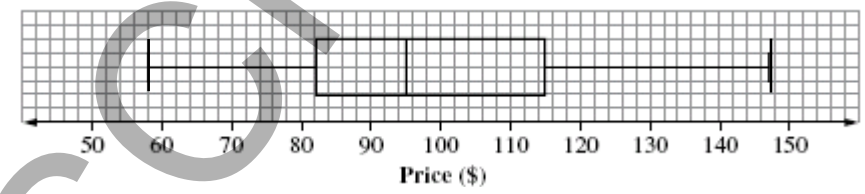
Heights (cm)	Class centre	Frequency
20 to < 30		16
30 to < 40		43
40 to < 50		82
50 to < 60		52
60 to < 70		7

(i) Complete the class centre column and calculate the mean and standard deviation for this sample (correct to 2 decimal places)

(ii) What is the modal class of this sample? Justify your answer.

QUESTION 2 **PROVIDE ANSWERS IN THE SPACE PROVIDED**

(a) This box plot represents the average price for a week's groceries for 180 households in East Hills. (3 marks)



(i) What is the highest price for a week's groceries?

(ii) How many households spent less than $82 per month for a week's groceries?

(iii) Calculate the interquartile range of prices.

(b) A random sample of 12 chocolate bars had the following weights (in g): (4 marks)

9.8	10.0	10.0	10.0	9.9	9.7	10.2	10.0	9.9	9.8	10.0	9.7

Find, correct to 2 decimal places:

(i) the mean weight

(ii) the standard deviation of the weights

(iii) the interquartile range of the weights.

(c) The heart rates (beats/min) of 20 gym members were taken before an aerobics class: (5 marks)

59	56	63	58	77	65	81	75	63	70
74	58	83	72	60	75	58	60	72	64

(i) Represent this data in a stem and leaf plot

(ii) What is the median heart rate?

(iii) If a person with a heart rate in the range 65 to 75 is of average fitness, what percentage of the members are of average fitness?

QUESTION 3

CIRCLE THE CORRECT ANSWER (1 mark each)

(a) When the pointer is spun, what is the probability it points to apricot or indigo?

A. $\frac{1}{4}$ **B.** $\frac{1}{2}$ **C.** 1 **D.** 0

(b) Helen has 3 skirts, 4 shirts and 2 pairs of shoes. In how many ways can she dress herself?

A. 1 **B.** 9 **C.** 24 **D.** 18

(c) A large bag of lollies consists of 9 white, 13 red, 12 green, 12 yellow and 4 pink lollies. If one lolly is selected at random from the bag, what is the probability that it is *not* white?

A. 0.1 **B.** 0.81 **C.** 0.9 **D.** 0.82

PROVIDE ANSWERS IN THE SPACE PROVIDED

(d) A number plate has 4 letters and 2 digits. (5 marks)

(i) How many number plates are possible?

(ii) What is the probability that a number plate selected at random ends in an odd number?

(iii) How many number plates are possible if the letters O, Q and I and the digit 0 are not used?

(iv) Why might the letters and the digits mentioned in part (iii) not be used?

(e) A group of students recorded the colours of the cars passing their school and found the results shown in the table. (4 marks)

COLOUR	FREQUENCY
Green	18
Yellow	7
Grey	24
White	53
Red	6
Black	3
Blue	9

(i) What is the experimental probability that the next car that passes is yellow?

(ii) What is the experimental probability that the next car that passes is not white?

(iii) How many grey cars would you expect to find in a random sample of 950 cars?