SECTION A – MULTIPLE CHOICE QUESTIONS (10 Marks)

Circle A or B or C or D for each of Questions 1 - 10

1. If simple interest is paid on \$2 400 at 4% p.a., how many years would it take for the interest to reach \$672 ?

   A. 7 B. 10 C. 5 D. 4

2. A rare coin was valued at \$3000 in 1980. If its value increased by 3.2% p.a., its value 15 years later would have been :

   A. $\$(3000\times 3.2\times 15)$ B. $\$(0.032\times 3000)^{15}$ C. $\$3000\times(1.032)^{15}$ D. $\$3000\times(0.032)^{15}$

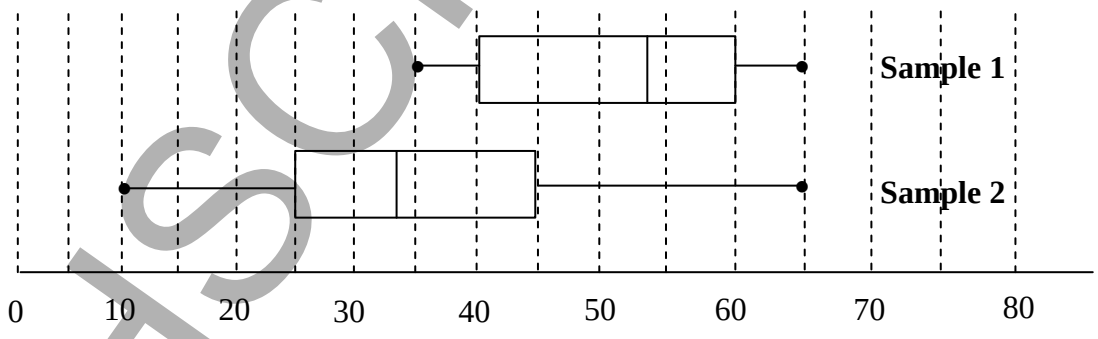
3. A TV is priced at \$890 including 10% GST. The price of the TV without GST is closest to :

   A. \$801 B. \$880 C. \$809 D. \$979

4. The average number of people attending each of the last four lectures was 20. In order to raise this average to 30, how many people must attend the next lecture?

   A. 110 B. 25 C. 50 D. 70

5. Which statement is true about the two samples illustrated by these box plots?



   A. Sample 1 has a greater interquartile range than sample 2.
   B. Sample 1 has a greater range than sample 2
   C. The highest score in sample 1 is more than the highest score in sample 2.
   D. The median of sample 1 is greater than the median of sample 2.

6. A tank contains fish of the following lengths: 15cm, 18cm, 16cm, 16cm, 20cm. Another fish which is 21 cm long is placed in the tank. Which of these statements is true?

   A. The mean length is increased by more than 10%
   B. The median remains the same.
   C. The standard deviation increases.
   D. The mode changes.

7. A coin has been tossed 10 times, and each time, a Head has appeared. The chance of the 11^{th} toss being a Head is :

   A. $(\frac{1}{2})^{11}$ B. $\frac{1}{2}$ C. $10 \times \frac{1}{2} \times \frac{1}{2}$ D. $1-(\frac{1}{2})^{10}$

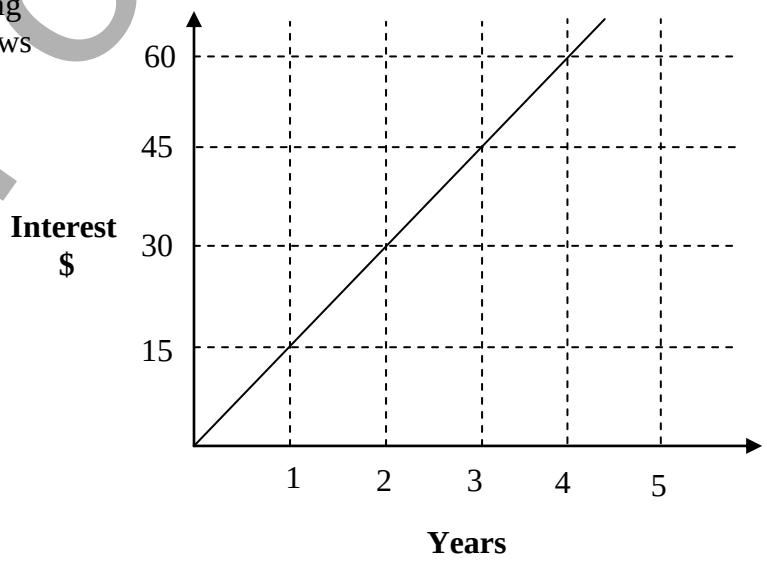
8. The number of different 3 letter arrangements, for car number plates, that can be formed from the letters of the alphabet is :

   A. 26^3 B. $26 \times 25 \times 24$ C. $26 \times 25 \times 24 \div 6$ D. $26^3 \div 6$

9. A coin is biased so it shows heads to tails in the ratio 4 : 3 when it is tossed. Out of 1000 tosses, it is expected to show:

   A. 571 heads B. 500 heads C. 750 heads D. 667 heads

10. $500 is invested in an account paying a flat rate of interest. The graph shows the interest that the investment is yielding over time.
What is the rate of interest?



   A. 3% B. 15%

   C. 10% D. 4%

SECTION B – SHOW ALL WORKING & SETTING OUT

Question 11 (8 marks)

(a) A regular pack of 52 playing cards is shuffled, and one card is selected at random. What is the probability that the card selected is either a 4 or a 5? **(1 mark)**

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(b) Assume that, on the birth of a child, either sex is equally likely. For a family of two children, draw a tree diagram, and use it to find the probability that the two children will be of the same sex. **(2 marks)**

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(c) A survey of 1500 people watching TV at a certain time on a certain night showed that the channels were being watched as follows :

Channel	No. Viewers	Relative Frequency
2	124	
7	358	
9	489	
10	412	
SBS		
TOTAL	1500	

(i) Complete this table, giving answers complete to 3 decimal places **(1 mark)**

(ii) If this was a representative sample of a population of 1.8 million people, how many people were watching Channel 9 at that time? (Answer to the nearest 100) **(1 mark)**

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(d) A team competing in a game of chance has a probability of $\frac{5}{12}$ of winning the game and a probability of $\frac{1}{8}$ of a draw. What is the probability that the team will lose the game ? **(1 mark)**

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(e) This table shows the number of vowels in one paragraph of a book:

Letter	A	E	I	O	U
Frequency	11	32	14	13	10

I choose a word from any book at random. Find the probability, as a percentage, that it

(i) contains an O or a U. **(1mark)**

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(ii) does not contain an A. **(1 mark)**

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Question 12 on the next page

Question 12 (8 marks)

(i) Alan was looking to invest $150 000 for a term of 5 years. He was offered two different rates by an investment broker :

Plan 1: 6.5% p.a. flat rate (simple interest) interest paid annually
Plan 2: 6% p.a. interest compounded monthly and paid at the end of the 5 year period

(a) Calculate the total interest earned over the 5 years in Plan 1. **(1 mark)**

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(b) Calculate the total interest earned in Plan 2. **(1 mark**)

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(c) Which plan provided the best return, and by how much ? **(1 mark)**

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(d) Alan invests in Plan 2, but for a period of 10 years and will gain approximately $122 910 interest. What simple interest rate does he need to invest at so he gains the same return in the same time period. Answer, as a percentage, correct to 1 decimal place. **(2 marks)**

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(ii) A new car cost $28 500. What was the value of a similar earlier model 10 years ago if the average inflation rate for the period was 3.4% p.a.? Give answer to nearest $100 **(1 mark)**

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(iii) Eliza bought 200 shares in Ausal Tec at $24.75 per share. Her broker charges a fee of $25.00 plus 1% of the share value. Calculate :

(a) The total cost of the shares, including brokerage. **(1 mark**)

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(b) The dividend yield of the share, (1 d.p.), if the dividend per share was $1.25 **(1 mark)**

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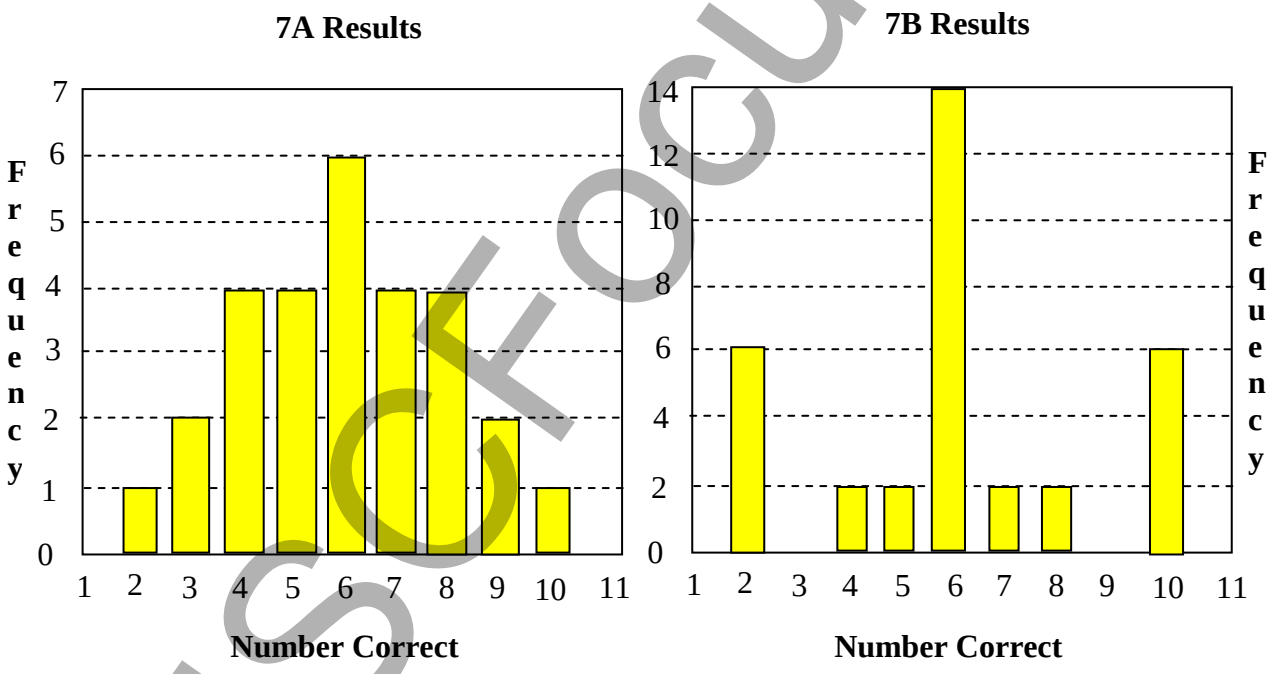
Question 13 (8 marks)

Two classes were given a spelling test. The results were graphed as shown.



(i) How many students were in each class ? **(1 mark)** 7A ……. 7B …….

(ii) What is the mean for each class ? **(1 mark)** 7A ……. 7B …….

(iii) What is the mode for each class ? **(1 mark)** 7A ……. 7B …….

(iv) What is the median score for each class ? **(1 mark)** 7A ……. 7B …….

(v) Find the standard deviation σ_n for each class. **(1 mark)** 7A ……. 7B …….

(This question continues next page)

Question 13 (Continued)

(vi) Complete The Cumulative Frequency table for class 7A, and use it to fill in the missing results. **(2 marks)**

x	f	c.f.
2	1	1
3	2	3
4	4	
5	4	
6	6	
7	4	
8	4	
9	2	
10	1	

Lower Quartile(Q_1) ……

Median (Q_2) ……...

Upper Quartile (Q_3) ……..

Interquartile Range …….

(vii) Briefly compare both class results, in the light of the results gained in the previous parts of this question. **(1 mark)**

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End of Assessment Task