



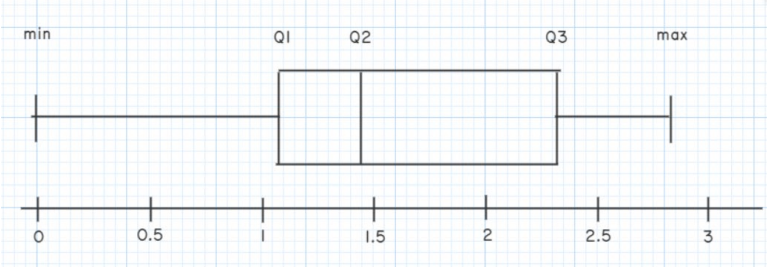
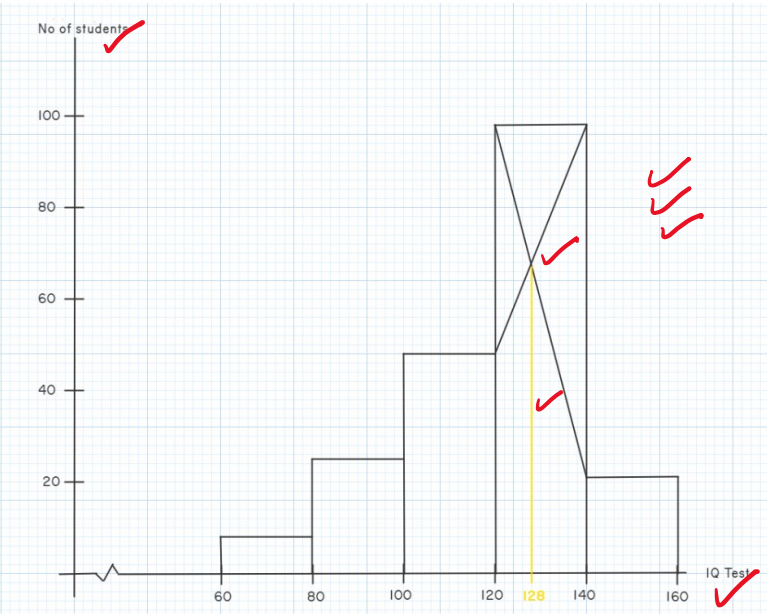
**UNIVERSITI TEKNOLOGI MARA
ASSESSMENT 1
(INDIVIDUAL ASSIGNMENT)**

COURSE	:	INTRODUCTION TO STATISTICS
COURSE CODE	:	QMT181/STA104
DATE	:	20TH MAY 2022
TIME	:	9.00 – 11.00 AM (120 MINUTES)

ANSWER SCHEME

(PLEASE CHECK THE SOLUTIONS BEFORE BEGIN MARKING)

QUESTION	SOLUTION	MARKS																		
1. (a)	i) Qualitative, Ordinal $\checkmark\checkmark\checkmark$ ii) Discrete Quantitative, Ratio $\checkmark\checkmark\checkmark$ iii) Qualitative, Nominal $\checkmark\checkmark\checkmark$	6 marks																		
(b)	i) TRUE $\checkmark\checkmark$ ii) FALSE $\checkmark\checkmark$ iii) TRUE $\checkmark\checkmark$ iv) TRUE $\checkmark\checkmark$	4 marks																		
2. (a)	All shop owners at the Shopping Mall 3A. $\checkmark\checkmark$	1 mark																		
(b)	Simple Random Sampling. $\checkmark\checkmark$ Advantage: Easy to apply. Or any relevant answer. $\checkmark\checkmark$	2 marks																		
(c)	Self-administrative questionnaire. $\checkmark\checkmark$ Reason: The respond rate is high. Or any relevant answer. $\checkmark\checkmark$	2 marks																		
3.	$k = 1 + 3.3 \log(n)$ $= 1 + 3.3 \log(15) = 4.88 \approx 5$ \checkmark Class interval: $I = \frac{52 - 28}{5} = 4.8 \approx 5$ \checkmark Class interval of 5 and 5 classes are formed: <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Class interval</th> <th>Tally</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>28-32</td> <td>II</td> <td>2</td> </tr> <tr> <td>33-37</td> <td>III</td> <td>3</td> </tr> <tr> <td>38-42</td> <td>III</td> <td>3</td> </tr> <tr> <td>43-47</td> <td>III</td> <td>3</td> </tr> <tr> <td>48-52</td> <td>IIII</td> <td>4</td> </tr> </tbody> </table>	Class interval	Tally	Frequency	28-32	II	2	33-37	III	3	38-42	III	3	43-47	III	3	48-52	IIII	4	3 marks
Class interval	Tally	Frequency																		
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43-47	III	3																		
48-52	IIII	4																		
4. (a)	Min value = 0% $\checkmark\checkmark$ Max value = 2.83% $\checkmark\checkmark$ Q1 is at $\frac{n+1}{4} = \frac{12+1}{4} = 3.25^{\text{th}}$ position $Q1 = 1.06 + (1.12 - 1.06)(0.25) = 1.075$ $\checkmark\checkmark$ Q2 is at $\frac{n+1}{2} = \frac{12+1}{2} = 6.5^{\text{th}}$ position $Q2 = 1.22 + (1.68 - 1.22)(0.5) = 1.45$ $\checkmark\checkmark$ Q3 is at $\frac{3(n+1)}{4} = \frac{3(12+1)}{4} = 9.75^{\text{th}}$ position $Q3 = 2.16 + (2.38 - 2.16)(0.75) = 2.325$ $\checkmark\checkmark$	5 marks																		

<p>(b)</p>	 <p>Min & max ✓ Q1, Q2 & Q3 ✓ Shape ✓ Skewed to the right/positive skewness. ✓</p>	<p>2 marks</p>
<p>5. (a)</p>	<p>Mean = $\frac{23980}{200} = 119.9$ ✓✓</p> <p>Standard deviation = $\sqrt{\frac{1}{200-1} \left[2951200 - \frac{23980^2}{200} \right]}$ ✓ ✓ ✓ ✓</p> <p>= $\sqrt{\frac{1}{199} [75998]}$</p> <p>= 19.54 ✓✓</p>	<p>2 marks</p> <p>3 marks</p>
<p>(b)</p>	<p>A Histogram of the IQ Scores of 200 Seventh-Grade Students in School A ✓</p>  <p>3 marks (ogive)</p> <p>1 mark (line in histogram)</p>	

	Mode = 128 ✓✓	1 mark
(c)	$PCS = \frac{119.9 - 128}{19.54} = -0.4145 \text{ (Negatively skewed)}$	2 marks
(d)	<p>Variance_B = $\sqrt{127.13} = 11.275$</p> $CV_{\text{School A}} = \frac{19.54}{119.9} \times 100\% = 16.30\%$ $CV_{\text{School B}} = \frac{11.275}{110.8} \times 100\% = 10.18\%$ <p>School B has less variation in the IQ scores in comparison to School A, therefore School B is more consistent compared to School A. ✓✓</p>	3 marks