UITM KEDAH



UNIVERSITI TEKNOLOGI MARA ASSESSMENT 2

COURSE	:	INTRODUCTION TO STATISTICS
COURSE CODE	:	QMT181/STA104
DATE	:	1 ST JULY 2022
TIME	:	9.00 – 11.00 AM (120 MINUTES)

ANSWER SCHEME

(PLEASE CHECK THE SOLUTIONS BEFORE BEGIN MARKING)

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QUESTION	SOLUTION	MARKS
1. (a)	$\sqrt{\sqrt{2}} \sqrt{\sqrt{2}} \sqrt{\sqrt{2}} \sqrt{\sqrt{2}}$ There is a strong positive linear relationship between time taken for special tutorial with exam score received.	2 marks
(b)	$\sum x = 147, \sum y = 807, \sum x^2 = 2337, \sum y^2 = 65449, \sum xy$ = 12085 $r = \frac{\sum xy - \frac{(\sum x)(\sum y)}{n}}{\sqrt{\left[\sum x^2 - \frac{(\sum x)^2}{n}\right] \left[\sum y^2 - \frac{(\sum y)^2}{n}\right]}}$ = $\frac{12085 - \frac{(147)(807)}{10}}{\sqrt{\left[2337 - \frac{(147)^2}{10}\right] \left[65449 - \frac{(807)^2}{10}\right]}}$ = 0.9297	5 marks
	All summation values $\sqrt[4]{\sqrt{4}}$ Substitute into formula $\sqrt[4]{\sqrt{4}}$ Final answer $\sqrt[4]{\sqrt{4}}$ $\sqrt{4}$ There exists a very strong positive linear relationship between the two variables.	
(c)	a) $y = a + bx$ $b = \frac{\sum xy - \frac{(\sum x)(\sum y)}{n}}{\sum x^2 - \frac{(\sum x)^2}{n}}$ $= \frac{12085 - \frac{(147)(807)}{10}}{2337 - \frac{(147)^2}{10}}$ $= 1.26 \sqrt{2}$ $a = \bar{y} - b \bar{x}$ $\sqrt{2} = 80.7 - 14.7(1.26)$ $= 62.18 \sqrt{2}$ $y = 62.18 + 1.26x \sqrt{2}$	4 marks

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(d)	Intercept = 62.18. This indicate that if a student does not attend any special tutorial (i.e., x = 0), then he or she will obtain an exam score of 62.18. $\sqrt{10}$	2 marks				
(e)	Slope, b = 1.26. $\sqrt[4]{V}$ For each additional hours spent for special tutorial, the exam score will increase by 1.26 marks. $\sqrt[4]{V}$					
(f)	Coefficient of determination, $R^2 = 0.9297^2 = 0.864 \sqrt{v}$ \sqrt{v} 86.4% of the total variation in exam score can be explained by the variation in time spent (in hours) for special tutorial. \sqrt{v}	2 marks				
(g)	x = 15.75 $\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{$	3 marks				
2.(a)	MaterialSimple Relative Price IndexDry chili105.8333 vvGarlic115 vvCorn starch floor104 vvSugar104.4444 vv	5 marks				
(b)	$I = \frac{105.8333 + 115 + 104 + 104.4444}{4} = 107.3194$	2 marks				
(c)	$I = \frac{(50 \times 12) + (42 \times 8) + (9 \times 5) + (15 \times 4.5)}{(40 \times 12) + (35 \times 8) + (7 \times 5) + (12 \times 4.5)} \times 100$ $V \qquad V \qquad V \qquad V \qquad V \qquad I = \frac{1048.5}{849} \times 100 = 123.50$ $V \qquad V \qquad$	3 marks				

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	Year	Quarter	Y	Average 4-Qtr MA	Trend		
•	2017	1	400				
		2	555				
				576.25			
		3	660		578.000		
				579.75			5 marka
		4	690		581.625		Smarks
				583.50			
	2018	1	414		584.750		
			570	586.00			
		2	570		588.500		
-		-	070	591.00	004.050		
		3	670	047.50	604.250		
·		4	710	617.50	040 750		
		4	710	620.00	618.750		
-	2010	1	520	620.00	622 750		
	2019	I	520	627 50	023.730		
		2	580	021.30	628 750		
		2	000	630.00	020.700		
		3	700	000.00			
•		Ŭ					
·		4	720				
-							
Positio	n of trend	l values <mark>v</mark>					
The amount spent on stationaries by the company dropped by 5.65% for the second quarter each year. \sqrt{v} The amount spent on stationaries by the company increased by 12.29% for the third quarter each year. \sqrt{v}							2 marks
$TVV =$ $\hat{T}_{3rd qu}$ $\hat{T}_{3rd qu}$ $\hat{y}_{3rd qu}$	$\frac{T_L - T_1}{n - 1} = \frac{6}{2}$ arter 2020	$\frac{528.75 - 578}{7} =$ $= T_L + TVV$ $= 628.75 +$ $= 665 \times 1.$: 7.25 √√ / (<i>t</i>) - 7.25 (5) 1229 = <i>R</i>	= 665 √√ M746.73 √√	,		3 marks
	Positio The ar 5.65% The ar 12.29% TVV = $\hat{T}_{3rd \ qu}$ $\hat{T}_{3rd \ qu}$ $\hat{y}_{3rd \ qu}$	Position of trend The amount spectrum of the set 12.29% for t	Teal Quarter 2017 1 2 3 4 3 2018 1 2018 1 2018 1 2019 1 4 3 2019 1 2 3 4 3 2019 1 4 3 2 3 4 4 2019 1 4 4 2019 1 4 4 2019 1 4 1 2019 1 4 1 2019 1 4 1 2019 1 4 1 2019 1 4 1 2019 1 4 1 2019 1 4 1 1 2 3 1 4 1	Teal Quarter T 2017 1 400 2 555 3 660 4 690 2018 1 2018 1 2 570 3 670 3 670 4 710 2019 1 2019 1 2019 1 2019 1 2 580 3 700 4 720 Position of trend values \checkmark The amount spent on stationaries b 12.29% for the second quarter each y TVV = $\frac{T_L - T_1}{n-1} = \frac{628.75 - 578}{7} = 7.25 \sqrt{V}$ $\hat{T}_{3rd quarter 2020} = T_L + TVV (t)$ $\hat{T}_{3rd quarter 2020} = T_L + TVV (t)$ $\hat{T}_{3rd quarter 2020} = 628.75 + 7.25 (5)$ $\hat{y}_{3rd quarter 2020} = 665 \times 1.1229 = R$	Teal Quarter T MA 2017 1 400	Position of trend values v The amount spent on stationaries by the company droppe 5.65% for the second quarter each year. \sqrt{v} The amount spent on stationaries by the company increase 12.29% for the third quarter each year. \sqrt{v} The amount spent on stationaries by the company increase 12.29% for the third quarter each year. \sqrt{v} The amount spent on stationaries by the company increase 12.29% for the third quarter each year. \sqrt{v} The amount spent on stationaries by the company increase 12.29% for the third quarter each year. \sqrt{v} The amount spent on stationaries by the company increase 12.29% for the third quarter each year. \sqrt{v}	Position of trend values $$ The amount spent on stationaries by the company dropped by 5.65% for the second quarter each year. $$ The amount spent on stationaries by the company increased by 12.29% for the third quarter each year. $$ The amount spent on stationaries by the company increased by 12.29% for the third quarter each year. $$ The amount spent on stationaries by the company increased by 12.29% for the third quarter each year. $$