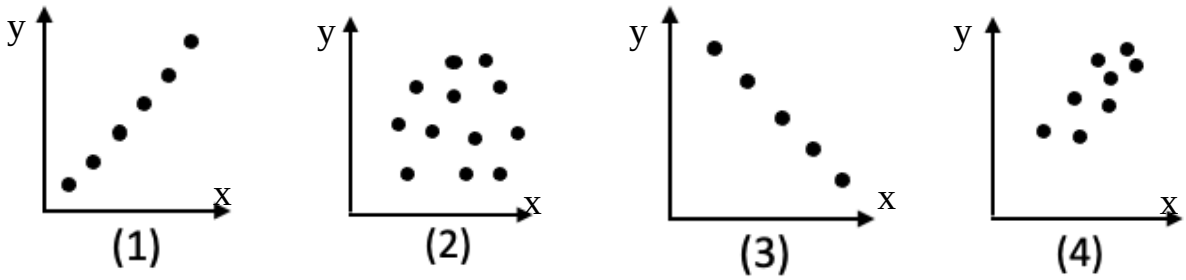
نموذج استرشادى (٥) لامتحان شهادة إتمام الدراسة الثانوية العامة ٢٠٢٥ / ٢٠٢٦ م

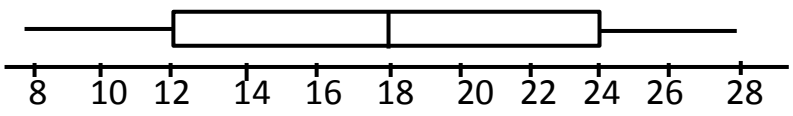
المادة : الإحصاء باللغة الإنجليزية (الشعبة الأدبية – رياضيات) الزمن : ثلاث ساعات

First : Multiple choice questions (1 Mark for each question) :

(1)	If the regression line equation is $\hat{y} = 2.5 - 0.8x$, then the type of the correlation between the two variables is …….						
(a)	direct	(b)	direct perfect	(c)	inverse	(d)	nihilistic

(2)	The shape of distribution that represents no correlation between the two variables x and y is …….  						
(a)	(3)	(b)	(2)	(c)	(4)	(d)	(1)

(3)	The semi-interquartile range of the values: 70, 81, 82, 85, 88, 90, 93 is …….						
(a)	2.5	(b)	4.5	(c)	2.1	(d)	3.2

(4)	From the box plot shown, the semi-interquartile range = …….  						
(a)	6	(b)	20	(c)	26	(d)	34

(5)	If Z is a standard normal random variable, then P ($-1 \leq Z \leq 1$) = …….						
(a)	0.3413	(b)	0.6286	(c)	0.4323	(d)	0.6826

(6)	If A and B are mutually exclusive events in the sample space of a random experiment and $P(A \cap B^{\setminus}) = \frac{1}{4}$, then P (A) = …….						
(a)	$\frac{1}{3}$	(b)	$\frac{1}{4}$	(c)	$\frac{1}{2}$	(d)	$\frac{2}{3}$

(7)	If A and B are two events in the sample space of a random experiment where P (A) = 0.35, P(B) = 0.48, and P (A ∪ B) = 0.6, then the probability of non-occurrence A or non-occurrence B is …….						
(a)	0.77	(b)	0. 4	(c)	0.12	(d)	0.52

(8)	If the prices of a commodity in a given month follow a normal distribution with mean of 25 pounds and standard deviation of 5 pounds, then maximum price for 11.51% of the days recording the lowest price is ……						
(a)	18	(b)	19	(c)	20	(d)	22

(9)	If the monthly income of a group of 100 workers follows a normal distribution with a mean of 180 pounds and a standard deviation of 10 pounds, then the number of workers that its income less than 195 pounds is ……						
(a)	65	(b)	75	(c)	90	(d)	93

(10)	If the confidence interval is]84.12, 95.88[, then the sample mean = …….						
(a)	85	(b)	83.8	(c)	90	(d)	90.2

Second : Multiple choice questions "2 Marks for each question" :

(11)	In a statistical study of the relation between the two variables *x* , y, if: $\sum D^2 = 19.5$, n = 7, then the Spearman's correlation coefficient between the two variables *x* and y ≃						
(a)	0.42	(b)	0.8	(c)	0.56	(d)	0.65

(12)	From the given data table: If the regression line equation is $\hat{y} = 3.6 + 0.3\,x$, then the estimation error when $x = 7$ is …….							
(a)	–3.3	(b)	3.3	(c)	14.7	(d)	–14.7	

x	9	5	6	7	5	4
y	4	6	7	9	4	3

(13)	In an experiment of tossing a coin multiple times the probability of getting heads is the probability of success (S), if the mean number of trials to reach the first success is 4, then S = …….						
(a)	0.51	(b)	0.4	(c)	0.25	(d)	0.62

(14)	From the opposite figure, the upper quartile = ……						
(a)	33	(b)	42	(c)	24	(d)	13

Stem	Leaves
1	1 2 3
2	0 2 4 5
3	1 3 5
4	2
The key	3|1 means 31

(15)	In an experiment of rolling a die twice, if the discrete random variable represents the absolute difference between the two numbers appearing on the top face, then the range of the random variable is ……						
(a)	{0,1,2,3,4,5}	(b)	{1,2,3,4,5,6}	(c)	{0,1,2,3,5}	(d)	{3,4,5,6}

(16)	If a fair coin is tossed two consecutive times, then the probability of getting heads in the second toss given that tail appeared in the first toss is ……						
(a)	$\frac{1}{4}$	(b)	$\frac{1}{2}$	(c)	$\frac{2}{3}$	(d)	$\frac{3}{4}$

(17)	In a study of a certain phenomenon, if the sample size is 50, the sample mean is 60, and the standard deviation is 9.2 at a confidence level of 95%, then the confidence interval for the statistical population mean ≃ ……						
(a)	]49.6 , 52.3[	(b)	]59.6 , 62.3[	(c)	]57.4 , 62.6[	(d)	]48.6 , 60.3[

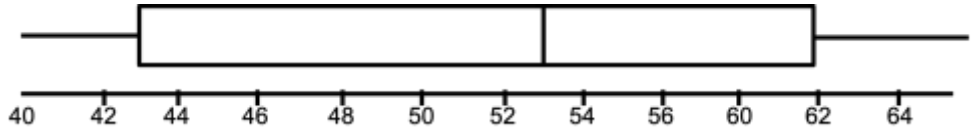
(18)	If the following data represents a relation between two variables x and y: $\sum x$ = 400, $\sum y$= 160, $\sum x^2$ = 19250, $\sum xy$ = 7400, n=10 , then the regression line equation of y on x is …….						
(a)	$\hat{y}$ = 3.69 + 0.308 x	(b)	$\hat{y}$ = 0.2 + 0.3 x	(c)	$\hat{y}$ = 2 – 3x	(d)	$\hat{y}$ = 5 + 0.1 x

(19) The box plot that represents the opposite data is ……

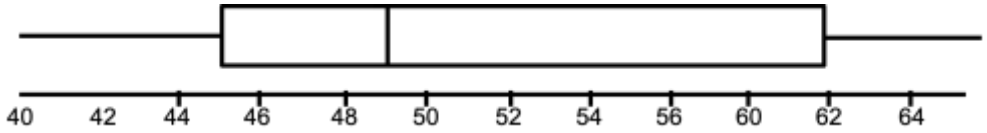
Stem	leaves
4	0 3 3 6 7
5	1 8 9
6	2 3 4

key	6|2 means 62

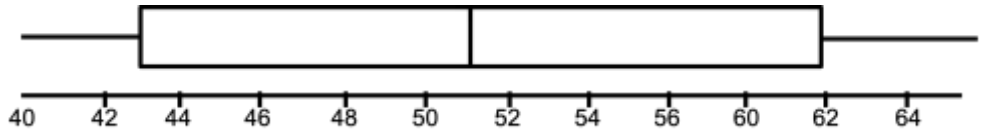
(a)



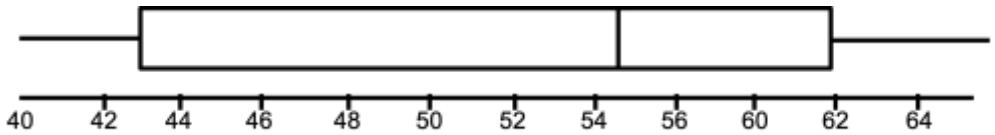
(b)



(c)



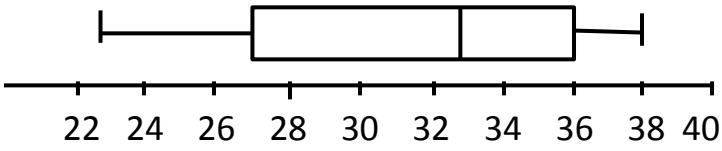
(d)



(20)	If A and B are independent events in the sample space (S) of a random experiment, P (A)= $\frac{2}{5}$, P (B) = $\frac{3}{5}$, then P (A | B) = …….						
(a)	0.2	(b)	0.4	(c)	0.6	(d)	0.8

(21)	If a card is randomly drawn from 20 identical cards numbered from 1 to 20, then the probability that the number on the drawn card is a prime number or divisible by 3 is …….						
(a)	$\frac{13}{20}$	(b)	$\frac{17}{20}$	(c)	$\frac{19}{20}$	(d)	$\frac{11}{20}$

(22)	In an experiment of rolling a die once, if the event A = {2, 3, 5} and the event B={1, 4, 5} are two events from the space of a random experiment, then A and B are: …….		
(a)	not independent	(b)	independent
(c)	mutually exclusive	(d)	mutually exclusive and independent

(23)	From the given box plot, the median is ……  						
(a)	33	(b)	38	(c)	34	(d)	32

(24)	If a discrete random variable has a mean of 10 and a variance of 16, then its coefficient of variation is ……						
(a)	20%	(b)	70%	(c)	30%	(d)	40%

(25) If the opposite stem-and-leaf plot represents the number of working hours in two factories, then the range of the first factory ……the range of the second factory.

First factory	Stem	Second factory
7 6 6 6 5	3	2 2 4 4 6 8
9 8 5 3 1 0	4	1 1 3 6 9
6 4 2 2 1 1	5	2 2 4 5
2 1	6	1 1 2
Key	5 | 3 | 2 means 35 for the first factory, 32 for the second factory	

(a)	$>$	(b)	$<$	(c)	$=$	(d)	$\geq$

(26)	If the sample size n = 144 and the standard deviation of the statistical Society is 15.6, then the estimation error at a confidence level of 95% is ……						
(a)	2.325	(b)	2.123	(c)	2.548	(d)	2.532

(27)	If the regression line equation is $\hat{y}$ = 9 + 0.7x, then the expected value of y when x = 6 is ……						
(a)	4.8	(b)	11.2	(c)	13.2	(d)	7.9

(28)	The semi-interquartile range of the following data: 12, 11, 8, 7, 9, 15, 13 is …….						
(a)	2	(b)	10.5	(c)	2.5	(d)	8

(29)	If A and B are two independent events and P(A) = 0.3, P(B) = 0.6, then P(A$^{\setminus}$| B) = …….						
(a)	0.7	(b)	0.4	(c)	0.5	(d)	0.2

(30)	If the probability of success in a single trial is S = 0.4 and the number of trials is n= 10, then the probability of obtaining exactly 4 successes ≃……						
(a)	0.0537	(b)	0.2508	(c)	0.4	(d)	0.2731

(31)	In a study of the relation between two variables x and y, if n = 10, $\sum x = 50$, $\sum y$= 60, $\sum xy$= 361, $\sum x^2$ = 310, $\sum y^2$ = 498, then Pearson's correlation coefficient ≃……						
(a)	0.8	(b)	0.65	(c)	0.67	(d)	1

(32)	If the opposite table represents the probability distribution of the discrete random variable X, then the value of m = ……						
(a)	0.2	(b)	0.3	(c)	0.8	(d)	0.1

x_r	1	3	4	5
f(x_r)	4m	m	0.2	3m

(33)	If Z is a standard normal random variable, then P(Z ≥ 0.97) = …….						
(a)	0.345	(b)	0.422	(c)	0.344	(d)	0.166

Third: Essay Questions "2 Marks for each question"

(34) If x is a discrete random variable with the following probability distribution:

Find the mean and standard deviation.

x_r	1	3	4	5
f(x_r)	0.4	0.1	0.2	0.3

(35) Find the sample size to calculate the confidence interval] 5.68 , 6.24 [with a confidence level of 95%, given that the sample standard deviation is 2 .