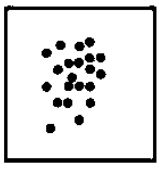
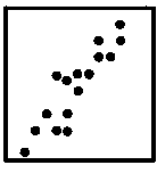
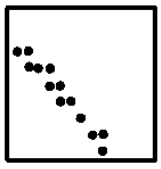
نموذج استرشادى (١) لامتحان شهادة إتمام الدراسة الثانوية العامة ٢٠٢٥ / ٢٠٢٦ م

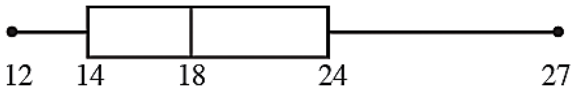
المادة : الإحصاء باللغة الانجليزية (الشعبة الأدبية) الزمن : ثلاث ساعات

First: Multiple choice questions" one mark for each item"

(1)	If the two points (11.5 , 10) and (6.5 , 5) lie on the regression line y on x, then the correlation between x and y is: ……						
(a)	perfect	(b)	inverse	(c)	direct	(d)	nihilistic

(2)	The scatter diagram that represents the nihilistic (no) correlation is : ……						
(a)		(b)		(c)		(d)	

(3)	The semi-interquartile range for the following data: 12 , 13 , 20 , 22 , 22 , 24 , 25 , 25 , 31 and 33 is ……						
(a)	4.125	(b)	18.25	(c)	23	(d)	26.5

(4)	From the opposite box plot: the semi-interquartile range =…… 						
(a)	2	(b)	3	(c)	5	(d)	7.5

(5)	If X is a normal random variable whose mean is μ and its standard deviation is σ, then P ($X \leq \mu + 1.2\ \sigma$) = …….						
(a)	0.8849	(b)	0.3849	(c)	0.6151	(d)	0.1151

(6)	If a ball is drawn randomly from a box containing 3 white balls, 5 red balls and 7 green balls, then the probability that the selected ball is white or green equals:……						
(a)	$\frac{1}{5}$	(b)	$\frac{7}{15}$	(c)	$\frac{2}{3}$	(d)	$\frac{1}{2}$

(7)	If A, B are two mutually exclusive events ,$P(A) = \frac{1}{3}$, $P(B) = \frac{1}{2}$, then $P(A' \cap B') =$ ……..						
(a)	$\frac{1}{6}$	(b)	$\frac{1}{5}$	(c)	$\frac{1}{4}$	(d)	$\frac{1}{3}$

(8)	If the weights of a group of the experimental animals follow a normal distribution Whose mean is μ gm. and its standard deviation is 10 gm. and known that P (X $\geq$ 180) = 0.1587 , then the mean μ = …… gm						
(a)	160	(b)	170	(c)	180	(d)	190

(9)	If a sample of size (n) has standard deviation 15.6 and estimation error at confidence level 95 % is 2.548. then the value of n = ……..						
(a)	144	(b)	12	(c)	95	(d)	196

(10)	A study was conducted on a sample of females about pulse rate. If the sample size was 49 , the standard deviation for the female population was σ = 12.5 , using a confidence level of 95 %,, then the estimation error = ……						
(a)	1.5	(b)	2.5	(c)	3.5	(d)	4.5

Second: Multiple choice questions" two marks for each item"

(11)	When calculating the Spearman's rank correlation coefficient (r) between two variables x and y ,if $\sum D^2 = 35$, $n = 6$,then r = …….						
(a)	-1	(b)	1	(c)	0	(d)	2

(12)	If the regression line equation of y on x is : $\hat{y}$ = 0.2 x + 3 and the value table of y when x = 5 is 4.6 , than the error in the value of y =…….						
(a)	0.4	(b)	0.6	(c)	4	(d)	8.6

(13)	If the probability of success in a single trial is 0.2, then the probability that it will take more than four trails to see the first success equals …….						
(a)	0.4096	(b)	0.4915	(c)	0.5904	(d)	0.6723

(14)	From the opposite stem and leaf diagram: Q1 - Q2 + Q3 = ……						
(a)	91	(b)	83	(c)	73	(d)	65

Stem	Leaf
5	0 9
6	1 5 7 8 8 9
8	3 3 5 7
9	0 1 5

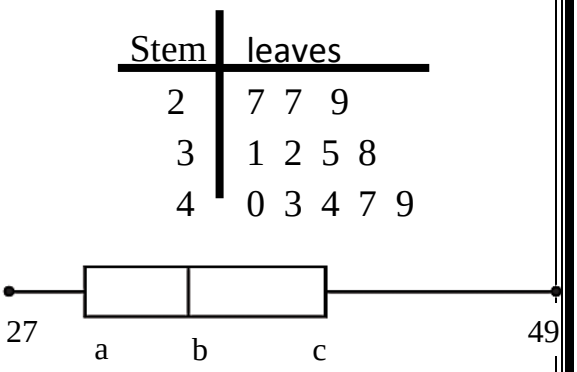
Key 6|1 = 61

(15)	In the experiment of tossing a coin three consecutive times, and X represents the discrete random variable that represents "The number of heads × the number of tales " ,then the range of X is ……						
(a)	$\{2 , 0\}$	(b)	$\{2 , 1 , 3\}$	(c)	$\{0 , 1 , 3\}$	(d)	$\{2 , 1 , 0\}$

(16)	If $P(A) = 0.45$, $P(B) = 0.6$, $P(A\|B) = 0.6$, then $P(B\|A) =$ …….						
(a)	0.2	(b)	0.4	(c)	0.6	(d)	0.8

(17)	If a sample of size (49) has a mean 60 and variance 144 at confidence level 95 % , then the confidence interval for the population mean μ = ……..						
(a)	$]56.64 , 63.36[$	(b)	$]54.64 , 61.36[$	(c)	$]51.64 , 58.36[$	(d)	$]56.64 , 61.36[$

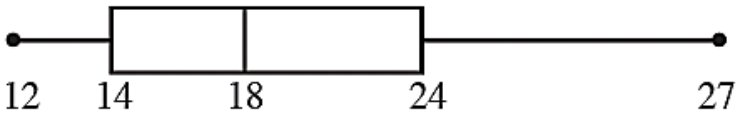
(18)	If (x) is the income and (y) is the consumption (in thousand LE): $\sum x = 120$, $\sum y = 100$, $\sum x^2 = 720$, $\sum y^2 = 418$, $\sum x y = 516$, $n = 40$, then the Predicted value of consumption (y) when the income is 100 thousand LE equals …….						
(a)	700.6	(b)	70.6	(c)	600.7	(d)	60.7

(19)	The given stem and leaf diagram shows the marks of 12 students in a test is used to draw the given box plot, then a + b + c = ….. 						
(a)	109.75	(b)	73.25	(c)	66	(d)	29.5

(20)	If A and B are two independent events such that: $P(A'\|B) = 0.3$,then $P(A^{\backslash}) = \cdots$						
(a)	0.3	(b)	0.5	(c)	0.7	(d)	0.8

(21)	To get a job in a company, a person has to pass two exams: theoretical and practical. If the probability to succeed in the theoretical exam is 0.75, the probability to succeed in the practical exam is 0.6 and the probability to succeed in both of them is 0.5. If a person applies to this job for the first time, then the probability of Success in at least one of the two exams = ….						
(a)	0.85	(b)	0.5	(c)	0.45	(d)	0.4

(22)	A and B are two independent events of sample space S for a random experiment P (A) = 2P (B) = x , P(AUB) = $\frac{7}{9}$, then the value of x = ……						
(a)	$\frac{2}{9}$	(b)	$\frac{2}{3}$	(c)	$\frac{7}{9}$	(d)	$\frac{1}{3}$

(23)	From the opposite box plot, Each of the following is correct <u>except</u>:……. 		
(a)	The range of the data = 15	(b)	$Q_1 = 24$
(c)	The median = 18	(d)	$Q_3 - Q_2 = 6$

(24)	X is discrete random variable its range is {0 ,1 , 2 , 3} and its probability distribution is given by the function $f(x)=\frac{1}{14}(a+x)$, the value of a = ……						
(a)	1	(b)	2	(c)	3	(d)	4

(25) The following data represents the marks Ahmed and Mona get in a weekly mathematics test. Where the test is out of 50.

Ahmed	37	45	31	36	35	40	41	42	40	45	50
Mona	42	23	45	37	41	34	37	45	46	48	45

Which of the following statements is correct?

(a)	Mona's marks are more divergent than Ahmed's marks	(b)	The median for Ahmed's marks is more than the median for Mona's marks
(c)	The mode for Mona's marks = 37	(d)	The mode for Ahmed's marks = 19

(26)	Sample size is 50 and its variance is 100 , using a confidence level of 95 %,then the estimation error for calculating the population mean ≃ …..						
(a)	27.7	(b)	20.79	(c)	2.77	(d)	0.392

(27)	If the regression line equation is: $\hat{y} = 8 - 0.2\,x$, then the value of y expected when x = 5 is:…….						
(a)	3.2	(b)	6	(c)	7	(d)	9

(28) From the ascending frequency table:

Upper boundaries	Ascending cumulative frequency
Less than 22	0
Less than 27	9
Less than 32	12
Less than 37	22
Less than 42	30
Less than 47	42
Less than 52	50

the median for the data = …….

(a)	32.25	(b)	38.875	(c)	45.125	(d)	12.875

(29) If $P(A) = 0.3$, $P(B) = 0.5$, $A \subset B$, $A \neq B$, then $P(A|B) + P(B|A) = \cdots$

(a)	0.2	(b)	0.8	(c)	1.5	(d)	1.6

(30) Osama tossed an irregular coin 200 times and the number of times a head appears is 140 times. If Osama tossed the coin 20 times again, then the variance of times the head appeared when Osama threw the coin 20 times = …..

(a)	14	(b)	7	(c)	0.7	(d)	4.2

(31) If $\sum x = 14$, $\sum y = 9$, $\sum x^2 = 252$, $\sum y^2 = 171$, $\sum x\,y = 192$,

n = 7 ,then Person's correlation coefficient between x and y equals ……

(a)	0.9	(b)	0.8	(c)	0.7	(d)	0.6

(32) Let X be a discrete random variable with mean $\mu = 3$, its probability distribution is given by the opposite table:

x_i	0	2	k	4
$f(x_i)$	m	$2m$	$\frac{1}{3}$	$5m$

then the value of $mk =$ ……

(a)	4	(b)	$3\frac{1}{12}$	(c)	3	(d)	$\frac{1}{4}$

(33) Let X be a continuous random variable with the following density function:

$$f(x)=\begin{cases}\frac{1}{50}(17-2x) & ,\ 1\le x\le 6\\ \text{zero} & ,\ \text{otherwise}\end{cases},$$

then $P(2\le X\le 5)=\ldots\ldots$

(a)	0.6	(b)	0.26	(c)	0.14	(d)	0.4

Third: essay questions "two marks for each question".

(34) A box contains 6 cards: 2 cards carry the number two, 3 cards carry the number three and a card carries the number 11, if a card has been randomly drawn and the discrete random variable X is defined as "the appeared number on the drawn card"

Find the coefficient of variation.

(35) The average sleep duration in a sample of 400 people is 7.2 hours and the standard deviation is 1.1 hours.

Calculate the 95 % confidence interval for the number of hours of sleep.