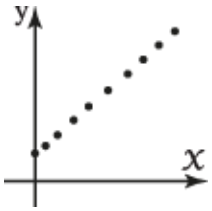
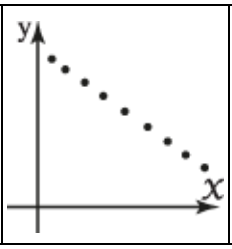
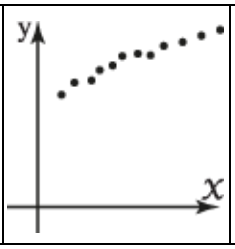
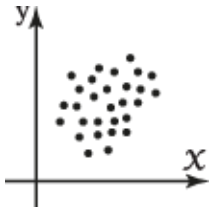
نموذج استرشادى (٢) لامتحان شهادة إتمام الدراسة الثانوية العامة ٢٠٢٥ / ٢٠٢٦ م

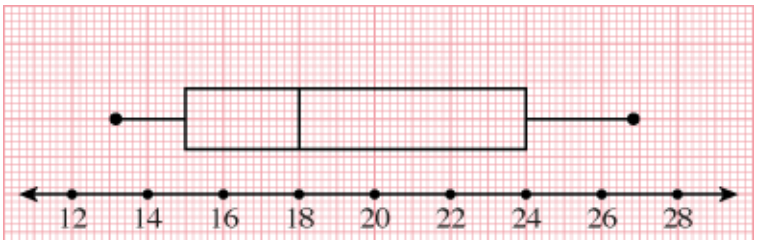
المادة : الإحصاء باللغة الإنجليزية (الشعبة الأدبية) الزمن : ثلاث ساعات

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

(1)	If all points in the scatter diagram lie on a straight line with a negative slope, then the correlation coefficient between the two variables equals …….						
(a)	1	(b)	–0.5	(c)	zero	(d)	–1

(2)	The shape of distribution that represents weak correlation between two variables x , y is …….						
(a)		(b)		(c)		(d)	

(3)	The semi-interquartile range of the data: 20, 12, 3, 8, 11, 22, 13 is …….						
(a)	4	(b)	5	(c)	6	(d)	7

(4)	If the following shape represents the distribution of marks for a group of students in a statistics exam, then the semi-interquartile range of students' grades in this exam is ……. 						
(a)	4.5	(b)	5	(c)	9	(d)	6

(5)	If Z is a standard normal random variable, then P(Z ≤ –0.84) = …….**.....**						
(a)	0.2995	(b)	0.2005	(c)	0.7995	(d)	0.3400

(6)	If A and B are two events in the sample space of a random experiment where $A \subset B$, $P(A) = \frac{1}{3}$, $P(A \cup B^{\setminus}) = \frac{5}{6}$, then P(B) = …….						
(a)	$\frac{1}{2}$	(b)	$\frac{1}{3}$	(c)	$\frac{1}{6}$	(d)	$\frac{1}{12}$

(7)	If A and B are two events in the sample space of a random experiment where $P(A) = \frac{3}{4}$, $P(B) = \frac{1}{2}$, $P(A^{\setminus} \cap B^{\setminus}) = \frac{1}{8}$,then the probability of occurring both A and B together is …….						
(a)	$\frac{1}{4}$	(b)	$\frac{5}{8}$	(c)	$\frac{1}{8}$	(d)	$\frac{3}{8}$

(8)	If the marks of students in a school follow a normal distribution with a mean μ = 44 marks and a standard deviation 8 marks, then the percentage of students who obtained at least 50 marks equals …… %						
(a)	12.56	(b)	21.26	(c)	22.66	(d)	25.42

(9)	The students' marks in a school follow a normal distribution with a mean μ = 17 marks and a variance marks 4, if the total number of students in the school is 1000, then the number of students who obtained a mark between 15 and 23 equals …….						
(a)	840	(b)	740	(c)	550	(d)	483

(10)	If the confidence interval for the mean of a sample is]73 ، 80[and the standard deviation of the sample is 12.5 at a confidence level of 95%, then the sample size equals …….						
(a)	49	(b)	48	(c)	47	(d)	46

Second : Multiple choice questions (2 Marks for each question) :

(11)	When calculating the rank correlation coefficient between two variables x and y, if $\sum D^2 = 8.5$ ، $n = 6$, then the correlation between x and y is ….						
(a)	inverse	(a)	perfect direct	(a)	nihilistic	(d)	direct

(12)	If the regression line equation of y on x is $\hat{y} = 3.2 + 0.5\,x$ and the tabulated value of y when $x = 7$ is 8 , then the error in estimation when $x = 7$ equals …….						
(a)	0.3	(b)	0.7	(c)	1.2	(d)	1.3

(13)	If the probability of success in a single trial is 0.4, then the probability that success occurs before the third trial is …….						
(a)	0.64	(b)	0.24	(c)	0.784	(d)	0.4

(14)	If the given data represents the marks of 10 students in an exam, then the upper quartile of these marks is ……. stem | leaves 1 | 2 3 2 | 0 2 2 4 5 8 3 | 1 3 The key 2|4=24						
(a)	31	(b)	28.75	(c)	23	(d)	18.25

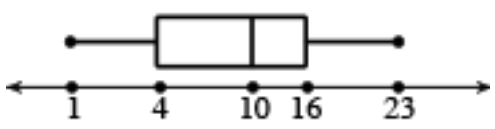
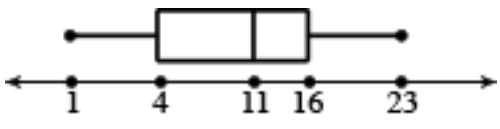
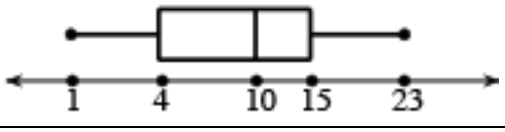
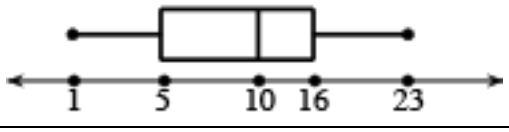
(15)	In an experiment of tossing a coin two consecutive times , if the random variable X is defined as "the absolute difference between the number of heads and the number of tails," then the range of the random variable X is …….						
(a)	{0 , 2}	(b)	{0 , 1}	(c)	{1 , 2}	(d)	{-1 , 1}

(16)	If A and B are two events in the space of a random experiment S where A ⊂ B , P(B) = $\frac{1}{2}$, P(A ⋂ B) = $\frac{1}{6}$, then P(B|A) = …….						
(a)	1	(b)	$\frac{1}{3}$	(c)	$\frac{2}{3}$	(d)	$\frac{1}{4}$

(17)	A sample of size 196 has a mean of 20. If its variance is 100, then the confidence interval for the mean μ of the statistical population is ……. at a confidence level of 95%.						
(a)	]18.6 , 21.4[	(b)	]18.5 , 21.5[	(c)	]18.4 , 21.6[	(d)	]18.3 , 21.7[

(18)	In studying the relationship between two variables x and y, if n = 6 , Σx = 73 , Σy = 57, Σx^2 = 1041 , Σxy = 804, then the regression equation of y on x is $\hat{y}$ = …….		
(a)	$0.703 - 0.723\ x$	(b)	$0.723 + 0.703\ x$
(c)	$0.703 + 0.723\ x$	(d)	$0.723 - 0.703\ x$

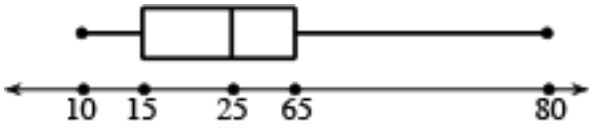
(19)	The box plot that represents the following data is …….									
	stem	leaves								
	0	1	2	3	4	5	7	9		
	1	0	1	4	5	6				
	2	1	2	3						
	The key	2 | 1 = 21								

(a)		(b)	
(c)		(d)	

(20)	If A and B are independent events in a random experiment where P(B) = 0.6 , P(A ∪ B) = 0.68 , then P(A) = …….						
(a)	0.2	(b)	0.3	(c)	0.5	(d)	0.12

(21)	If the probability of a student to success in the history exam is 0.85, and the probability of success in the geography exam is 0.9, and the probability of success in at least one of them is 0.95, then the probability of success in both subjects is …….						
(a)	0.7	(b)	0.8	(c)	0.75	(d)	1

(22)	There are two bottles of guava juice and four bottles of orange juice. If Fares selected two bottles randomly one after the other without replacement, then the probability that both bottles are guava juice is …….						
(a)	$\frac{1}{15}$	(b)	$\frac{2}{3}$	(c)	0.3	(d)	0.4

(23)	If the following shape represents the distribution of students' marks in one exam, then the percentage of students who obtained more than 65 marks is …….% 						
(a)	75	(b)	50	(c)	65	(d)	25

(24)	A discrete random variable has a mean μ and a standard deviation 3.75, if its coefficient of variation is 2.5% , then μ = ……						
(a)	150	(b)	120	(c)	100	(d)	80

(25) If the given data shows the marks of students from two different classes in philosophy, then the marks of ……

First class	The stem	Second class
1	1	
6 0 0	2	2
8 6 6 2	3	2 2 2 4 5
	4	7 8

The key 0|2|2 means 20 in the first class, 22 in the second class

(a)	First class have more dispersion than those of second class	(b)	Second class have more dispersion than those of first class
(c)	Both classes have the same dispersion	(d)	The two classes have no dispersion

(26) A sample size of 49 has a variance of 64. The error in estimation is ……. using a confidence level of 95%.

(a)	17.92	(b)	2.24	(c)	2.42	(d)	3.92

(27) If the regression line equation of y on x is $\hat{y} = 7 - 0.3\,x$, then the expected value of y when $x = 10$ is …….

(a)	4	(b)	5	(c)	6	(d)	7

(28) If Q_1, Q_2 and Q_3 are the three quartiles of the values: 4, 5, 1, 18, 15, 22, 14, 11, 10, 9, then $Q_1 + Q_2 + Q_3$ = …….

(a)	31.5	(b)	31.25	(c)	31	(d)	31.75

(29) If a fair die is rolled twice, then the probability of obtaining two numbers their sum is 7 given that the first roll resulted in 2 equals …….

(a)	$\frac{1}{6}$	(b)	$\frac{1}{3}$	(c)	$\frac{5}{6}$	(d)	$\frac{2}{3}$

(30)	A non-uniform die was rolled 200 times, and the number 5 appeared 20 times. If the die is rolled 30 times, then the expected number of times 5 will appear is …….						
(a)	3	(b)	4	(c)	5	(d)	2

(31)	In studying the relationship between two variables x and y, if n = 10, Σx = 60, Σy = 70, Σxy = 374, Σx^2 = 406, Σy^2 = 536, then the correlation coefficient between x and y equals …….						
(a)	1	(b)	-1	(c)	0.92	(d)	-0.9

(32)	If f(x) = $\begin{cases} \frac{1}{k}\,(x+3)\,, -3 < x < 3 \\ \text{zero} \qquad \text{otherwise} \end{cases}$ is the probability density function of a continuous random variable, then k = …….						
(a)	18	(b)	16	(c)	$\frac{1}{18}$	(d)	$\frac{1}{16}$

(33)	If P(Z ≤ k) = 0.2877 where Z is a standard normal random variable , then k = …….						
(a)	0.56	(b)	–0.56	(c)	–0.65	(d)	0.65

Third: Essay Questions (2 Marks for each question) :

(34)	If the range of a random variable X is {1 , 2 , 3 , 4} where P(X = 1) = 0.16, P(X = 2) = 0.2, P(X = 3) = 0.28 , calculate the expectation of the variable X.

(35)	A sample of 100 employees was taken, and it was found that the mean weekly working hours is 38, with a standard deviation of 4 hours. Calculate the confidence interval for the mean weekly working hours with a confidence level 95%.