نموذج (٨) لامتحان شهادة إتمام الدراسة الثانوية العامة ٢٠٢٥ / ٢٠٢٦ م

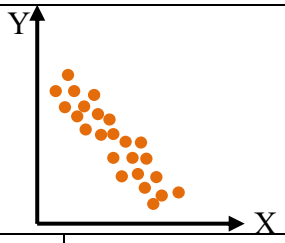
المادة : الإحصاء باللغة الإنجليزية (الشعبة الأدبية) الزمن : ثلاث ساعات

أولاً : الأسئلة الموضوعية (الاختيار من متعدد) "كل سؤال درجة واحدة"

(1)	If z is a standard normal random variable, then: $P(z < -1.1) = \ldots\ldots\ldots$						
(a)	0.3643	(b)	0.1357	(c)	0.8643	(d)	0.2714

(2)	If A and B are two events in a sample space of a random experiment, and if: $P(A \cup B) = 0.6, P(A \cap B) = 0.2$, then: $P(A - B) + P(B - A) = \ldots\ldots\ldots$						
(a)	0.5	(b)	0.4	(c)	0.8	(d)	1

(3)	If r is the linear correlation coefficient between two variables and the correlation is strong but not perfect then r can be equal to $\ldots\ldots\ldots$						
(a)	1	(b)	-1	(c)	0.19	(d)	-0.91

(4)	If the opposite figure represents the scatter diagram between two variables, x and y, then the type of correlation between x and y is $\ldots\ldots\ldots$ 						
(a)	direct	(b)	inverse	(c)	Perfect direct	(d)	Perfect inverse

(5)	From the stem and leaf diagram in the table opposite, the median = $\ldots\ldots\ldots$						
(a)	8	(b)	258	(c)	25.6	(d)	25.8

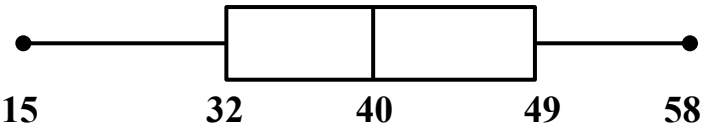
Stem	Leaf
23	4 5
24	4 7 9
25	0 4 8 8
26	3 8 9
27	1 2 5

key: 24 | 7 = 24.7

(6)	A random sample was taken to estimate the confidence interval for the population mean. The confidence interval was]6.6, 8.4[. Then the sample mean						
(a)	1.8	(b)	7	(c)	7.5	(d)	7.4

(7)	If a student's score on a test that follows a normal distribution with a mean of 75 and a variance of 25 is 80, then the student's standard score on that test equals						
(a)	1	(b)	-1	(c)	0.2	(d)	-0.2

(8)	If A and B are two independent events a sample space of a random experiment, and $P(A) = 0.3, P(B) = 0.4$, then $P(A \cup B) =$						
(a)	0.7	(b)	0.1	(c)	0.12	(d)	0.58

(9)	If the opposite figure is a box plot of a group of students' scores in statistics, then the semi quartile range of the students' scores is . . . . . 						
(a)	8.5	(b)	17	(c)	40	(d)	43

(10)	If X is a normal random variable with mean μ and standard deviation σ , then: $P(\mu - 2\sigma < X < \mu) =$						
(a)	0.5	(b)	0.4772	(c)	0.0228	(d)	0.2774

ثانياً : الأسئلة الموضوعية (الاختيار من متعدد) "كل سؤال درجتان"

(11)	If X is a continuous random variable, its probability density function is: $f(x) = \begin{cases} 2k & , \quad 2 < x < 4 \\ zero & , \quad otherwise \end{cases}$ Then: k = ...						
(a)	1	(b)	2	(c)	$\frac{1}{2}$	(d)	$\frac{1}{4}$

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(12)	From the data of a factory for the working hours in a week for 50 workers, the length of the interval was 5, the beginning of the first quartile interval was 32, the corresponding frequency for the first quartile interval was 10, and the cumulative ascending frequency preceding the first quartile interval was 12. Then, $Q_1 =$						
(a)	22	(b)	32.25	(c)	33	(d)	37.25

(13)	A random sample of size n was taken to estimate the confidence interval for the population mean] 9.02, 10.98 [. If the sample standard deviation is equal to 8 at a 95% confidence level, then: $n =$.						
(a)	25	(b)	49	(c)	64	(d)	225

(14)	If the equation of the regression line y on x is: $\hat{y} = 0.5x + 3$, then the expected value of y when $x = 4$ is						
(a)	2	(b)	5	(c)	6	(d)	7

(15) If X is a discrete random variable, its probability distribution function is:

x_r	1	2	3
$f(x_r)$	k	2 k	3 k

Then: k = ...

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

(16) The opposite diagram is a stem and leaf diagram for a set of values.
From the opposite diagram,
the first quartile value is . . . . . .

Stem	Leaf
1	2 3
2	0 2 2 4 5 5
3	1 3

key: 2 | 4 = 24

(a)	18.25	(b)	23	(c)	26.25	(d)	2.75

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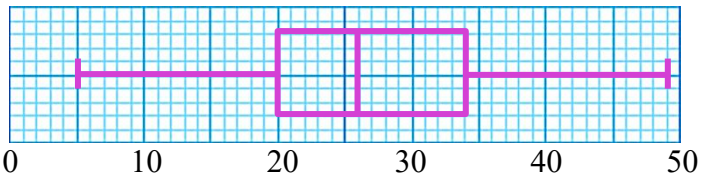
(17)	A random sample of 36 people was taken, with a mean of 20 and a standard deviation of 5.7, using a 95% confidence level, the confidence interval for the population mean is						
(a)	]18.1 , 21.9 [	(b)	]18.6 , 21.4 [	(c)	]17.1 , 22.9 [	(d)	]18.7 , 21.3 [

(18)	A box contains 7 red balls and 5 white balls. If two balls are drawn at random, one after the other, without replacement, then the probability that the second ball is red, given that the first ball is white = ...						
(a)	$\frac{7}{11}$	(b)	$\frac{6}{11}$	(c)	$\frac{4}{11}$	(d)	$\frac{7}{12}$

(19)	If: $\sum x = 50$, $\sum y = 60$, $\sum x^2 = 310$, $\sum y^2 = 500$, $\sum xy = 210$, $n = 10$, then Pearson's correlation coefficient between x , y is						
(a)	Direct strong	(b)	Direct weak	(c)	Inverse strong	(d)	Inverse weak

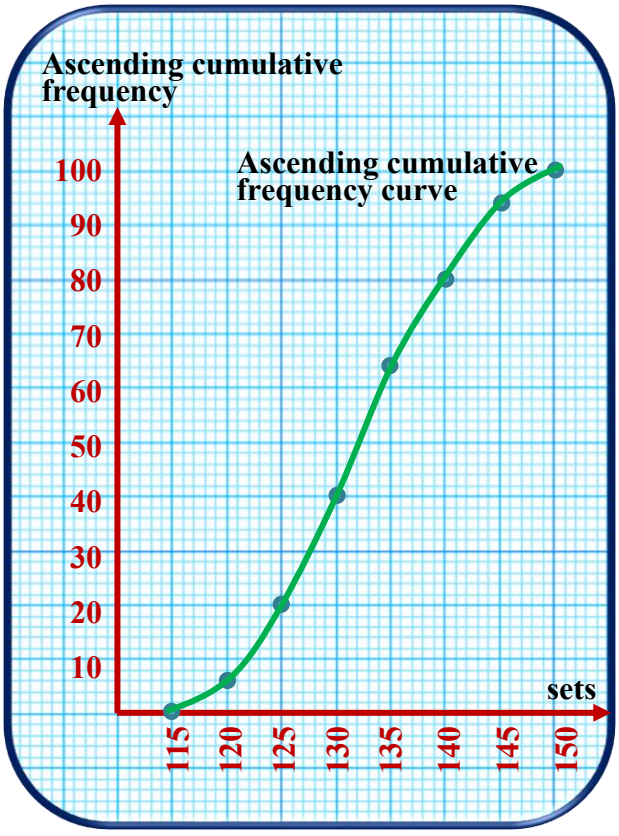
(20)	In a study for the relationship between two variables x, y, if: $\sum x = 15$, $\sum y = 30$, $n = 10$ and the equation of the regression line of y on x: $\hat{y} = 1.5\,x +$ k, then k = ...						
(a)	1.5	(b)	-1.5	(c)	0.75	(d)	-0.75

(21)	From the corresponding box plot:  Range + Semi quartile range = ...						
(a)	44	(b)	56	(c)	51	(d)	58

(22)	In an experiment, tossing a regular coin three times the probability of getting two heads at most = ...						
(a)	$\frac{1}{8}$	(b)	$\frac{3}{8}$	(c)	$\frac{5}{8}$	(d)	$\frac{7}{8}$

(23)	In a statistical study to find the Spearman's rank correlation coefficient (r) for two variables x, y, if: $\sum D^2 = 35,\ n = 6$, then r = ...						
(a)	1	(b)	zero	(c)	0.5	(d)	-0.5

(24)	In the experiment of throwing a regular die once, if A is the event of a prime number appearing, B is the event of an even number less than 6 appearing, then A and B are two . . . . . events		
(a)	Mutually exclusive	(b)	Independent
(c)	Mutually exclusive and independent	(d)	dependent

(25)	If the opposite figure represents the ascending cumulative frequency curve of a frequency distribution, then: Q_3 = ... 						
(a)	122	(b)	133	(c)	138	(d)	140

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(26) If X is a discrete random variable and its probability distribution is as shown in the table:

x_r	1	2	3
$f(x_r)$	0.2	0.6	0.2

then: the variance = ...

(a) 1 (b) 2 (c) 0.2 (d) 0.4

(27) If X is a discrete random variable, and $\sum x_r \cdot f(x_r) = 4$, $\sum x_r^2 \cdot f(x_r) = 25$, then the coefficient of variation =. . . . . %

(a) 16 (b) 75 (c) 25 (d) 50

(28) If the weights of students in a university with 10 000 students follow a normal distribution with a mean of 70 kg and a standard deviation of 5 kg, then the number of students whose weight exceeds 80 kg = ... students

(a) 288 (b) 477 (c) 319 (d) 199

(29) From the data in the following table:

x	5	8	10	14	16	20
y	4	6	9	11	12	15

If the equation of the regression line is: $y = 0.7\,x + 0.7$, then the error at $x = 8$ is equal to . . . . . .

(a) 6.3 (b) 6 (c) 0.7 (d) 0.3

(30) For the set of values: 7, 9, 8, 4, 10, 12, 6, 7, 2, 5, 11. The sum of the three quartiles is . . . . . .

(a) 20 (b) 21 (c) 22 (d) 23

(31) If A and B are two events from a sample space of a random experiment, and P(B`) = 0.3, P(A|B) = 0.3, then P(A ∩ B) = ...

(a) 0.6 (b) 0.9 (c) 0.21 (d) 0.4

(32)	If $X \sim B\ (5, 0.5)$, then: $P(x > 3) =$						
(a)	0.1875	(b)	0.1863	(c)	0.3125	(d)	0.1475

(33)	If X ~ G (0.5) then its standard deviation = ...						
(a)	1	(b)	0.5	(c)	$\sqrt{2}$	(d)	2

ثالثاً: الأسئلة المقالية " كل سؤال درجتان"

(34) A job was announced for which 100 people applied. Their data was arranged as follows:

Qualified		
	Married	Single
Male	40	10
Female	10	10

Unqualified		
	Married	Single
Male	3	12
Female	10	5

Calculate the probability that the chosen person is married, provided that he is qualified.

(35) If the probability of a person passing the driving test on the first attempt is 0.3, what is the probability of passing on the third attempt at most?