نموذج (٧) 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 $y = 5 - x$ is the regression line equation of y on x, then the correlation between x and y is						
(a)	weak positive	(b)	strong positive	(c)	null	(d)	inverse

(2)	If r is Pearson's linear correlation coefficient and the correlation is positive, then $r \in$						
(a)	[-1, 1]	(b)	[0, 1]	(c)	[-1, 0]	(d)	] 0, 1]

(3)	The semi-interquartile range for the following data: 3, 9, 11, 19, 7, 2 and 10 is						
(a)	4	(b)	5	(c)	3	(d)	7

(4)	The lower quartile for the data represented by the stem-and-leaves diagram shown is						
(a)	43	(b)	47	(c)	50	(d)	58.5

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

Key 5\|8 = 58

(5)	If X is a discrete random variable with range {-1 , 0 , 1 , 2}, and P(-1) = 0.2, P(0) = 0.4, and P(1) = 0.1 , then P(2) = ...						
(a)	0.3	(b)	0.4	(c)	0.5	(d)	0.1

(6)	If P(B) = 0.6 and P(B ∩ C) = 0.4 , then P(B – C) = ...						
(a)	0.4	(b)	0.4	(c)	0.2	(d)	0.1

(7)	If B and C are mutually exclusive events in a sample space, and P(B) = 0.3, P(C) = 0.5, then P(B ∪ C) = ...						
(a)	0.8	(b)	0.2	(c)	0.3	(d)	0.4

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(8)	If Z is a standard normal variable and P(Z > k) = 0.4013 , then k = ...						
(a)	0.25	(b)	0.5	(c)	0.24	(d)	0.42

(9)	A sample of size 225 with a 95% confidence level and an error in estimation of 0.784, the standard deviation of the sample is						
(a)	25	(b)	6	(c)	5	(d)	36

(10)	If the upper limit of the confidence interval for a sample mean is 31.96 at a 95% confidence level, the sample mean is 30, and the sample standard deviation is 7, then the sample size is						
(a)	25	(b)	36	(c)	49	(d)	64

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

(11)	If the daily income for a group of 500 workers follows a normal distribution whose mean is 1800 LE and a standard deviation 150 LE, then the number of workers whose income is more than 1980 LE ≃..... workers.						
(a)	57	(b)	36	(c)	58	(d)	442

(12)	If the equation of regression line of y on x is y = 0.2 x + 3, then the expected value of y when x = 5 is						
(a)	4	(b)	3	(c)	3.2	(d)	0.2

(13)	If X ~B (10, 0.36), then the expectation of the variable X is						
(a)	36	(b)	3.6	(c)	6.4	(d)	0.64

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(14) From the following ascending cumulative frequency table, the semi-interquartile range = ...

Upper limits of sets	Less than 15	Less than 20	Less than 25	Less than 30	Less than 35	Less than 40	Less than 45
Ascending Cumulative Frequency	0	3	12	27	45	57	60

(a) 4.5 (b) 9 (c) 26 (d) 35

(15) If X is a continuous random variable, and its probability density function is $f(x) = \begin{cases} k & where \ -4 \le x \le 4 \\ 0 & otherwise \end{cases}$, then k is .....

(a) 0.125 (b) 0.5 (c) $\frac{1}{4}$ (d) 4

(16) If A and B are two events from a sample space for a random experiment such that A ⊂ B, then P(B | A) is .....

(a) P(S) (b) P(B) (c) P(A – B) (d) P(B – A)

(17) From the data in the following table, Spearman's rank correlation coefficient = ...

x	Excellent	Good	Very Good	Pass	Weak	Good
y	Good	Weak	Pass	Excellent	Very Good	Pass

(a) 0.41 (b) – 0.41 (c) 0.51 (d) – 0.51

(18) If the equation of regression line of y on *x* is $y = 3.68 + 0.308\,x$, and the tabulated value of $y = 12$ when $x = 30$, then the error magnitude = ...

(a) 1.29 (b) 1.92 (c) 0.92 (d) 0.29

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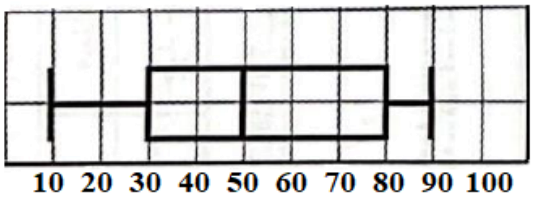
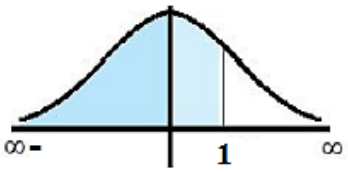
(19)	From the opposite box plot, the semi-interquartile range is ..... 						
(a)	25	(b)	50	(c)	60	(d)	80

(20)	If A and B are independent events, and P(A) = 0.2 , P(B) = 0.6 , then P(A ∪ B) = ...						
(a)	0.12	(b)	0.32	(c)	0.68	(d)	0.8

(21)	In an experiment of rolling a regular die once: The probability of getting an even prime number given that a number greater than one has appeared is						
(a)	0.2	(b)	0.4	(c)	0.6	(d)	0.8

(22)	If the sample space for a random experiment is {A , B , C}: P(A ∪ B) = 0.6 and P(A) = 0.4 , then P(B) = ...						
(a)	0.2	(b)	0.4	(c)	0.3	(d)	0.6

(23)	The opposite figure is the curve of the standard normal distribution. The area of the shaded region = ... 						
(a)	0.8413	(b)	0.5587	(c)	0.6413	(d)	0.4413

(24)	If X ~ G (0.5) , then the variance of the variable X is						
(a)	1	(b)	0.25	(c)	0.5	(d)	2

(25)	If μ is the mean of a random variable = 10, and the coefficient of variation = 25 %, then the variance of this variable = ...						
(a)	2.5	(b)	3.5	(c)	6.25	(d)	12.25

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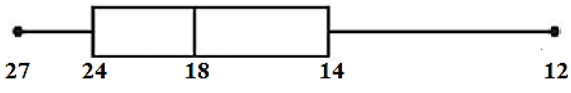
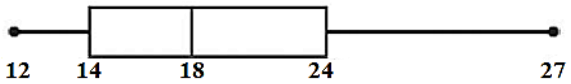
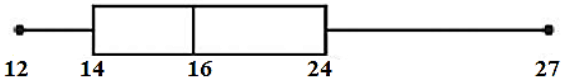
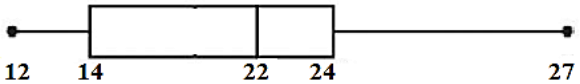
(26)	If the regression line equation of y on x is $y = 50 + 6x$, then when $x = 500{,}000$, $y =$						
(a)	5,300,000	(b)	3,000,000	(c)	3,000,050	(d)	5,600,000

(27)	The box plot that represents the following data: 14 , 24 , 16 , 12 , 18 , 24 , 20 , 16 , 26 , 13 , 27 is		
(a)		(b)	
(c)		(d)	

(28)	A box contains 10 white balls and 15 red balls. If two balls are drawn successively without replacement, the probability that the second ball is white given that the first is red is						
(a)	$\frac{6}{25}$	(b)	$\frac{5}{12}$	(c)	$\frac{28}{45}$	(d)	$\frac{1}{4}$

(29)	If X is a normal random variable with mean μ, then $P(X - \mu > 1.8\,\sigma) =$						
(a)	0.4641	(b)	0.4452	(c)	0.0359	(d)	0.4713

(30) If X is a discrete random variable whose probability distribution is given by the following table,

x_r	1	2	k
$f(x_r)$	0.1	0.8	0.1

If the expectation = 2, then k = ...

(a)	3	(b)	4	(c)	5	(d)	6

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(31)	If the monthly income of 200 families is a random variable X that follows a normal distribution with an expectation μ = 400 LE and a standard deviation σ = 80 LE. A family is chosen randomly. The probability that the family's monthly income is greater than 500 LE is						
(a)	0.4641	(b)	0.1056	(c)	0.4474	(d)	0.4740

(32)	If the mean of a random variable equals 150 and its coefficient of variation is 2.5 %, then the standard deviation of the random variable =..... approximately						
(a)	3.75	(b)	14.1	(c)	375	(d)	19.4

(33)	If X is a discrete random variable and the expectation = 5, and $\sum(x_r)^2 \times f(x_r)$ = 34, then the standard deviation is						
(a)	29	(b)	34	(c)	9	(d)	3

ثالثاً: الأسئلة المقالية " كل سؤال درجتان"

(34)	In a study for the relationship between the quantity demanded y in kg and the price x in LE for a certain product, we have the following data: $\sum x = 25$, $\sum y = 30$, $\sum x\,y = 181$, $\sum x^2 = 155$, $\sum y^2 = 289$ and n = 10. Find Pearson's linear correlation coefficient and state its type.

(35)	A soldier aims at a target. Find the probability that the soldier hits the target after more than three attempts, given that the probability of hitting the target is 0.6.

Questions ended

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