

Third secondary Statistics – Model 7

1. If the two points (8,10), (6,12) lying on the regression Line y on x and the correlation is perfect then all of the following points lie on the same line except the point

- a) (5,15) b) (10,8) c) (12,6) d) (5,13)

2. The relationship between the circumference of a circle and the length of its radius is a correlation

- a) strong inverse b) strong direct
c) perfect inverse d) perfect direct

3. From the stem and leaves diagram opposite then the median is

- a) 16
b) 17
c) 18
d) 20

stem		leaves
0	9	
1	0 2	2 2 3 4 5 6 6
2	0 1	1 5 7 8 9
3	1 2	3
Key	1 4 = 14	

4. if Z is standard normal random variable then $p(y \geq 2) = \dots\dots$

- a) $P(1 \leq Z \leq 3)$
b) $P(0 \leq Z \leq 2)$
c) $P(Z \geq -2)$
d) $P(Z \leq -2)$

5. If A and B two events from the out come space of a random experiment and $P(A) = \frac{1}{3}, P(A \cap B) = \frac{3}{25}$ then $P(B | A) = \dots\dots$

- a) 2 b) $\frac{1}{2}$ c) $\frac{9}{25}$ d) 1

6. If A, B two events from the outcome of a random experiment (S) and $P(A) = 0.6$
 $P(B) = 0.5, P(A \cap B) = 0.3$, then A and B two events

- a) mutually exclusive b) Independent
c) dependent d) mutually exclusive and dependent

7. In the opposite diagram Which of the following statement is in correct?

- a) The range of the set (A) = 30
- b) The median for the set (B) = 62
- c) the mode of the set (A) = 43
- d) set A is more variant than set B

Set B	Leaves	Set A
0	4	1 2 3 3
6 3	5	4 5
2 1	6	2 5
7 6 5 2	7	1

Key 3|5|4 means 54 for set a and 53 for set B

8. if X is a normal random variable whose mean μ and standard deviation σ then

$$P(M \leq x \leq M + 2\sigma) = \dots$$

- a) 0.9772
- b) 0.0228
- c) 0.4772
- d) 0.5844

9. If the distribution of wages of workers of a factory is a normal random distribution whose mean $\mu = 5,000$ pounds and standard deviation $\sigma = 500$ pound then the percentage of workers whose wages exceed 6,145 pounds equals%

- a) 11
- B) 0.1
- c) 10
- d) 1.1

10. The mathematical expectation (mean) of a geometric distribution with probability of success 0.2 is equal to

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

11. if the equation of the regression line Y on X is $Y = 2x - 1$ then the expected value of y when $x = 10$ is

- a) 9
- b) 18
- C) 19
- d) 8

12. When calculating Spearman's rank correlation coefficient + between x and y if $D^2 = 40$ and $n = 5$, then $r =$

- a) 1 b) -1 c) 0 d) 0.5

13. If the lower limit of the confidence interval for the mean is 23.04 at 95% confidence level and the sample size is 625 and the mean of the sample is equal to 25 then: the standard deviation of the data

- a) 25 b) 26 c) 27 d) 28

14. If the upper quartile order of a set of individual values is 48, then the number of this values is.....

- a) 64 b) 60 c) 96 d) 63

15. the function which represent the probability distribution function of the random variable X is...

a)

x_i	1	2	3
$f(x_i)$	0.2	0.3	0.5

b)

x_i	1	2	3
$f(x_i)$	0.2	0.3	0.4

c)

X_i	1	2	3
$f(X_i)$	0.2	0.8	0.1

d)

x_i	1	2	3
$f(x_i)$	0.2	-0.1	0.9

16. 1000 students are studying in a language college. the number students studying English is 600, the number of students studying french is 500 and the number of students studying both language is 350 students, if a student from this college is chosen at random the probability that this student is studying french knowing that is studying English =

- a) $\frac{2}{5}$ b) $\frac{7}{12}$ c) $\frac{3}{20}$ d) $\frac{7}{20}$

17. If x is a discrete random variable and its probability distribution is shown in the following table

x_i	1	2	3	4
$\sum(x_i)$	0.4	0.3	0.2	0.1

then the average $\mu = \dots$

- a) 1 b) 2 c) 3 d) 4

18. In a statistical study to find the correlation coefficient between two variables x , and y if

$$\sum x = 0, \sum y = 0, \sum x^2 = 10, \sum y^2 = 40, \sum xy = 20,$$

then the Pearson's linear correlation coefficient equal to ...

- a) 0.4 b) 0.5 c) 0.6 d) 1

19. From the stem and leaves diagram

$$Q_1 + Q_2 + Q_3 = \dots$$

- a) 100
b) 92
c) 106
d) 98

Stem	Leaves
2	1 1 2 3
3	6 7 7
4	0 1 2 2

Key 2 | 3=23

20. If A and B are two events from a sample S of a random experiment where $ACB, P(B) = 0.5$ then $P(A \cup B) = \dots$

- a) 1
b) $\frac{1}{2}$
c) $\frac{2}{3}$
d) 1

21. In the experiment of throwing regular die once, the probability of getting an odd number, giving that the number appearing on the upper face is less than 4 is equal to...

- a) $\frac{1}{4}$ b) $\frac{1}{2}$ c) $\frac{2}{3}$ d) 1

22. if A, B two events from a sample space (S) of a random experiment and $P(B) = 0.4, P(A - B) = 0.5$, then $P(A | B') = \dots$

- a) $\frac{1}{6}$ b) $\frac{1}{2}$ c) $\frac{3}{4}$ d) $\frac{5}{6}$

23) from the following table

$Q_1 = \dots\dots$

Set	Frequency	The upper boundaries of the set	Ascending cumulative frequency
-4	2	Less than 4	0
-8	4	Less than 8	2
-12	8	Less than 12	6
-16	6	Less than 16	14
-20	4	Less than 20	20
Total	24	Less than 24	24

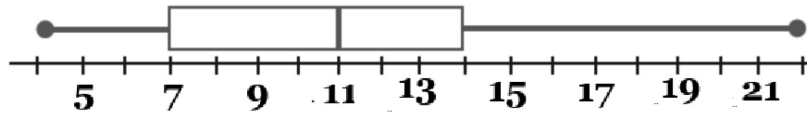
- a) 14
b) 12
c) 13
d) 15

24. A bag contains 6 white balls and 10 green balls if two balls are drawn random y without replacement, the probability that the two balls are green

- a) $\frac{3}{8}$ b) $\frac{5}{8}$ c) $\frac{10}{8}$ d) $\frac{25}{64}$

25. In the opposite figure the inter-quartile range =

- a) 7
b) 14
c) 3.5
d) 18



26. If the chance of success of one experiment is equal 0.4 and the number of experiments $n = 10$ then: the probability of 4 success is equal to

- a) 0.2508 b) 0.4 c) 0.0537 d) 0.0124

27. In a study of the relationship between two variables x, y where $\sum x = 10, \sum y = 32, n = 4$ and the equation of the regression line is $y = a + 2x$ then $a = \dots$

- a) 1 b) 2 c) 3 d) 4

28. If the probability of success forasinge surgery is 90% that is the probability of at least one success if the surgery is performed three times is

- a) 0.001 b) 0.1 c) 0.9 d) 0.999

29. If $P(A') = 0.3$, $P(B) = 0.4$, $P(A \cap B) = 0.2$ then $P(A | B') = \dots$

- a) $\frac{1}{2}$ b) $\frac{5}{6}$ c) 1 d) $\frac{3}{4}$

30. If x is a continuous random variable its probability density function is:

$$f(x) = \begin{cases} \frac{x+1}{12} & , 0 \leq x \leq 4 \\ 0 & , \text{other wise} \end{cases}$$

then $P(x \geq 2) = \dots$.

- a) $\frac{5}{12}$ b) $\frac{1}{2}$ c) $\frac{1}{6}$ d) $\frac{2}{3}$

31. If the probability of success in a trial is 0.25 then the probability that the first success will occur before or on the third attempt....

- a) $\frac{15}{64}$ b) $\frac{37}{64}$ c) $\frac{7}{16}$ d) $\frac{69}{64}$

32. If a player wins 75% of the matches he played during his career, then the probability that he will win 3 matches out of 5 upcoming matches equal to.....

- a) $\frac{135}{512}$ b) $\frac{45}{512}$ c) $\frac{5}{1024}$ d) $\frac{47}{512}$

33. If the upper limit of the 95% Confidence interval for the sample mean is 7.25 and the estimation error is 1.25 then the sample mean equal

- a) 5 b) 6 c) 7 d) 8

Essay question

34. From the data in the following table

x	Excellent	good	very-good	pass	weak	good
y	good	weak	pass	Excellent	very-good	pass

Calculate spearman's rank correlation coefficient between x , y

35. The corresponding data represent maximum temperatures and the minimum for some governorates of in Egypt represent the data using stem and leaf diagram

Represent the data using

- a) Find the median for each group separately
- b) which of these degrees is more variation

Governorate	Max. temp	Min. temp.
Cairo	27	22
Giza	26	22
El-Fayoum	30	25
Alexandria	25	17
Damietta	26	18
Luxor	36	22
A swan	41	32
Bani sues	30	24