UNIVERSITY OF EDUCATION, WINNEBA
COLLEGE OF TECHNOLOGY EDUCATION, KUMASI
DEPARTMENT OF TOURISM AND HOSPITALITY EDUCATION
DEPARTMENT OF FASHION DESIGN AND TEXTILES EDUCATION

END OF 2ND SEMESTER EXAMINATION, JAN. 2020

COURSE CODE	GET 125
COURSE TITLE	STATISTICS I
DURATION	2 HOURS
LECTURER	DR. YARHANDS DISSOU ARTHUR
INSTRUCTION(S)	SECTION A: CIRCLE THE CORRECT ANSWER ON THE QUESTION PAPER SECTION B: ANSWER ALL QUESTIONS IN THE SECTION IN THE BLANK SPACES PROVIDED

INDEX NO. :_____   CLASS:_____

SECTION A (30 MARKS)

1. PICK OUT THE ODD
   A. Simple random sampling C. Quota Sampling
   B. Stratified Sampling   D. Cluster sampling   E. None of these

Use the data above to answer the following questions 2-6

68, 94, 63, 75, 71, 88, 64, 55 80, 54, 69, 98, 93,
53, 74, 52 88, 54, 69, 98, 88, 78, 78,

2. Find the mode of the data set.
   A. 54   C. 69
   B. 78   D. 88   E. None of these

3. Calculate the mean of the data set approximating to the nearest whole number.
   A. 70   C. 73
   B. 74   D. 75   E. None of these

4. Find the 10% trimmed mean.
   A. 73.84   C. 74.74
   B. 75.54   D. 78.64   E. None of these

5. Find the interquartile range.
   A. 23   C. 24
   B. 25   D. 26   E. None of these
6. Find the median
   A. 69   C. 71
   B. 74   D. 75   E. None of these

Use the data in the table to answer the question

X	F
18	10
19	25
20	30
21	28
22	7

7. The mean and the median of the data set are
   A. 20 and 18 respectively   C. 19 and 20 respectively
   B. 19.97 and 20 respectively   D. 19.97 and 19 respectively
   E. None of these

8. Find the standard deviation of the data set
   A. 1.044   C. 1.105
   B. 1.545   D. 1.225
   E. None of these

9. Find the interquartile range of the data set.
   A. 1   C. 2
   B. 3   D. 4   E. None of these

10. Find the P_{75}
    A. 18   C. 19
    B. 20   D. 21   E. None of these

11. Find the skewness of the data set
    A. 0.08   C. -0.08
    B. -0.98   D. 0.98   E. None

12. Calculate the kurtosis
    A. 0.15   C. 0.25
    B. 0.33   D. 0.45   E. None

13. Given the two events, A and B with the probabilities, $P(A) = 0.50$, $P(B) = 0.35$ and $P(A/B) = 0.80$. Compute the probabilities, $P(A \cap B)$ and $P(A \cup B)$.

    A.   0.2800 and 0.6750   B.   0.1750 and 0.6750

    C.   0.0000 and 0.8500   D.   0.2800 and 0.5700   E.None of these

14. The probability that an athlete will win a race is $\frac{1}{6}$ and that he will be second and third are $\frac{1}{4}$ and $\frac{1}{3}$ respectively. What is the probability that he will not be in the first three places?

    A. $\frac{1}{72}$ B. $\frac{3}{4}$

    C. $\frac{5}{12}$ D. $7\frac{1}{72}$ E.   None of these

15. The prices of articles A, B and C are £30, £42 and £65. Find the mean price if the three articles are given weights of 5, 3 and 2 respectively.

    A. 40.2   C. 40.6

    B. 60.4   D. 46.0   E. None of these

Given the frequency below, use it to answer question 15 and 16.

X	5	6	7	8	9	10
F	7	11	15	18	6	5

16. Find the median of the data.

    A. 5   C. 6

    B. 7   D. 7.5   E. None of these

17. Find the interquartile range of the data set above.

    A. 2   C. 3

    B. 1   D. 4   E. None of these

18. The weighted mean of the two numbers 30 and 15 is 20. If the weightings are 2 and x respectively, find the value of x.

    A. 5   C. 6

    B. 3   D. 4   E. None of these

Cartons of orange juice are advertised as containing 1 litre. A random sample of 100 cartons gave the following results for the value x. $\sum x = 101.4$ and $\sum x^2 = 102.83$

Use the information above to answer question 19 and 20

19. Calculate the standard deviation of the volume of orange juice in these cartons.

    A. 0.104   C. 0.410

    B. 0.010   D. 1.014   E. None of these

20. Using the preamble above, find the mean.

    A. 1.014   C. 1.104

    B. 1.040   D. 0.014   E. None of these

21. The sum of the probabilities of the experimental outcomes in an event must equal 1.

    A. *True*   B. *False*

22. If two events are independent, we need only know each events probability to computer the probability of the interaction of the event.

    A. *True*   B. *False*

23. If two events are independent, they must be mutually exclusive.

    A. *True*   B. *False*

24. The central limit thereon ensure that the sampling distribution of $\bar{X}$ is a normal probability distribution regardless of the sample size.

    A. *True*   B. *False*

25. The term $\sqrt{(N-n)(N-1)}$ in the formular for the standard derivation of $\bar{X}$ is called the continuity correction factor

    A. *True*   B. *False*

26. If a student's exam score corresponds to a positive z score, then the student has a score that is less than the mean of the set of exam scores.
    A. TRUE   B. FALSE

27. For simple linear regression there are only one dependent and independent variable.
    A. TRUE   B. FALSE

28. Regression model is said to multiple if there is one independent variable and many dependent variables
    A. TRUE   B. FALSE

29. The 50th percentile of a data set corresponds to the mean value of the data set.
    A. TRUE   B. FALSE

30. In correlation analysis the correlation coefficient lies between zero and one inclusive
    A. TRUE   B. FALSE

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SECTION B (30 MARKS)

1. Explain the following terms as applied in statistics   6marks

   i.   Census

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   ii.   Population

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   iii.   Data

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   iv.   Variable

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2.   The following table shows the distribution of the ages (in years) of 120 students, randomly selected from a school.

Age (in years), x	18	19	20	21	22	25
No. of Students, f	32	40	20	18	7	3

Where $\sum_{i=1}^{k} f_i x_i = 2,343$ and $\sum_{i=1}^{k} f_i x_i^2 = 46,009$

Calculate the following values

   i.   Mean   2marks

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ii.   Median   2marks

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3. You have been requested by management of your organization to conduct statistical investigation into customer satisfaction to help improve customer retention.

List the stages involve in this statistical investigation.   8marks

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Complete the following table and use the information in the table to answer the questions below.

X	Y	X^2	Y^2	XY
10	45			
20	46			
30	50			
40	56			
50	59			
60	63			
70	64			
80	67			
90	74			
$\sum X =$	$\sum Y =$	$\sum X^2 =$	$\sum Y^2 =$	$\sum XY =$

i. $n\sum xy - \sum x \sum y = $ ....

ii. $n\sum x^2 - \left(\sum x\right)^2 = $ ....

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iii. $n\sum y^2 - \left(\sum y\right)^2 = $ ....

iv. $\left(n\sum x^2 - \left(\sum x\right)^2\right)\left(n\sum y^2 - \left(\sum y\right)^2\right)$ ....

v. $r = \dfrac{n\sum xy - \sum x\sum y}{\sqrt{\left(n\sum x^2 - \left(\sum x\right)^2\right)\left(n\sum y^2 - \left(\sum y\right)^2\right)}} = $ ....

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