

Exam. held on - 12.02.2024

STAT/ARO/III/24

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO**Test Booklet No. :**

00017

**TEST BOOKLET
STATISTICS****Series****Time Allowed : 2 Hours****Full Marks : 100****Read the following instructions carefully before you begin to answer the questions :**

1. The name of the Subject, Roll Number as mentioned in the Admission Certificate, Test Booklet No. and Series are to be written legibly and correctly in the space provided on the Answer-Sheet with Black/Blue ballpoint pen.
2. **Answer-Sheet without marking Series as mentioned above in the space provided for in the Answer-Sheet shall not be evaluated.**
3. All questions carry equal marks.

The Answer-Sheet should be submitted to the Invigilator.

Directions for giving the answers : Directions for answering questions have already been issued to the respective candidates in the 'Instructions for marking in the OMR Answer-Sheet' along with the Admit Card and Specimen Copy of the OMR Answer-Sheet.

Example :

Suppose the following question is asked :

The capital of Bangladesh is

- (A) Chennai
(B) London
(C) Dhaka
(D) Dhubri

You will have four alternatives in the Answer-Sheet for your response corresponding to each question of the Test Booklet as below :



In the above illustration, if your chosen response is alternative (C), i.e., Dhaka, then the same should be marked on the Answer-Sheet by blackening the relevant circle with a Black/Blue ballpoint pen only as below :

**The example shown above is the only correct method of answering.**

4. Use of eraser, blade, chemical whitener fluid to rectify any response is prohibited.
5. Please ensure that the Test Booklet has the required number of pages (16) and 100 questions immediately after opening the Booklet. In case of any discrepancy, please report the same to the Invigilator.
6. No candidate shall be admitted to the Examination Hall/Room 20 minutes after the commencement of the examination.
7. **No candidate shall leave the Examination Hall/Room** without prior permission of the Supervisor/Invigilator. No candidate shall be permitted to hand over his/her Answer-Sheet and leave the Examination Hall/Room before expiry of the full time allotted for each paper.
8. No Mobile Phone, Electronic Communication Device, etc., are allowed to be carried inside the Examination Hall/Room by the candidates. Any Mobile Phone, Electronic Communication Device, etc., found in possession of the candidate inside the Examination Hall/Room, even if on off mode, shall be liable for confiscation.
9. No candidate shall have in his/her possession inside the Examination Hall/Room any book, notebook or loose paper, except his/her Admission Certificate and other connected papers permitted by the Commission.
10. Complete silence must be observed in the Examination Hall/Room. No candidate shall copy from the paper of any other candidate, or permit his/her own paper to be copied, or give, or attempt to give, or obtain, or attempt to obtain irregular assistance of any kind.
11. This Test Booklet can be carried with you after answering the questions in the prescribed Answer-Sheet.
12. Noncompliance with any of the above instructions will render a candidate liable to penalty as may be deemed fit.
13. No rough work is to be done on the OMR Answer-Sheet. You can do the rough work on the space provided in the Test Booklet.

N.B. : There will be negative marking @ 0.25 per 1 (one) mark against each wrong answer.**/29-A****[No. of Questions : 100]****SEAL**

1. Statistical results are
 - (A) absolutely correct
 - (B) usually not true
 - (C) true on an average
 - (D) universally accepted as true

2. Mailed questionnaire method of data collection can be adopted if respondents
 - (A) live in cities
 - (B) have high incomes
 - (C) are known
 - (D) are educated

3. The heading of a row in a statistical table is known as
 - (A) stub
 - (B) caption
 - (C) title
 - (D) prefactor

4. The frequency of a variable is always
 - (A) in percentage
 - (B) a fraction
 - (C) an integer
 - (D) None of the above

5. The sum of deviations of individual observations, in a data set, is always zero from
 - (A) mode
 - (B) median
 - (C) geometric mean
 - (D) None of the above

6. For dealing with qualitative data, the best average is
 - (A) arithmetic mean
 - (B) geometric mean
 - (C) harmonic mean
 - (D) median

7. If the class midpoints in the frequency distribution of a group of persons are 125, 132, 139, 146, 153, 160, 167, 174, 181, then the size of the classes are
 - (A) 6
 - (B) 8
 - (C) 7
 - (D) 9

8. Non-dimensional diagrams are also known as
 - (A) cubes
 - (B) spheres
 - (C) pictograms
 - (D) All of the above

9. The most appropriate way to represent the data relating to monthly expenditure on different items by a family is by using a
 - (A) histogram
 - (B) pie diagram
 - (C) line diagram
 - (D) frequency polygon

10. In an Ogive curve, the points are plotted for
- the values and the frequencies
 - the values and the cumulative frequencies
 - the values and the relative frequencies
 - the frequencies and the cumulative frequencies
11. If each observation of a set is multiplied by 10, then the mean of the new set of observations will
- remain the same as the original mean
 - be ten times the original mean
 - be one-tenth of the original mean
 - be increased by 10
12. The correct relationship among AM, GM and HM is
- $AM \geq GM \geq HM$
 - $GM \geq AM \geq HM$
 - $HM \geq GM \geq AM$
 - $AM = GM = HM$
13. The median of the variate values 11, 7, 6, 9, 12, 15, 19 is
- 9
 - 12
 - 15
 - 11
14. Mean deviation is minimum when the deviations are taken from the
- mean
 - median
 - mode
 - zero
15. The mean of five observations is 4.4 and their variance is 8.24. If three of the observations are 1, 2 and 6, then the other two observations will be
- 7, 8
 - 9, 4
 - 6, 5
 - 4, 8
16. Three groups of observations contain 8, 7 and 5 observations, respectively. Their geometric means are 8.52, 10.12 and 7.75. The geometric mean of the single group of 20 observations formed by pooling the three groups is
- 7.821
 - 8.837
 - 9.643
 - 6.438
17. Which of the following measures of central tendency is **not** affected by extreme values?
- Mode
 - Median
 - 6th decile
 - All of the above

18. The average wage of workers of a factory is ₹ 550.00 per month and the standard deviation of wages is 110. The coefficient of variation is
- (A) 30%
 (B) 15%
 (C) 20%
 (D) 500%
19. If for a distribution, the coefficient of kurtosis $\gamma_2 < 0$, then the frequency curve is
- (A) platykurtic
 (B) mesokurtic
 (C) leptokurtic
 (D) Cannot be ascertained
20. Lagrange's formula is used for
- (A) interpolation
 (B) extrapolation
 (C) inverse interpolation
 (D) All of the above
21. The mean and standard deviation of a set of values from a normal distribution are 66 and 4, respectively. The range in which atmost 95% values lie is
- (A) 62 to 70
 (B) 62 to 74
 (C) 58 to 74
 (D) 66 to 74
22. In case of a positively skewed distribution, the relation among mean, median and mode that holds is
- (A) median > mean > mode
 (B) mean > median > mode
 (C) mode > median > mean
 (D) mode > mean > median
23. In a line of regression of Y on X, the variable X is known as
- (A) independent variable
 (B) regressor
 (C) explanatory variable
 (D) All of the above
24. The regression coefficient is independent of change of
- (A) origin
 (B) scale
 (C) both origin and scale
 (D) neither origin nor scale
25. When two judges rank two individuals only, the Spearman's rank correlation coefficient can assume the values
- (A) -1 and 0 only
 (B) -1 and +1 only
 (C) 0 and +1 only
 (D) -1, 0 and +1

26. The range for multiple correlation coefficient R is

- (A) 0 to 1
- (B) 0 to ∞
- (C) -1 to 1
- (D) $-\infty$ to ∞

27. If the coefficient of correlation in a bivariate setup is noted to be 0.7, then which of the following statements is/are correct?

- (i) The percentage of variation in the dependent variable which is explained by the independent variable is 49%.
- (ii) Both the regression coefficients have positive sign.
- (iii) Both the regression coefficients have negative sign.

Select the correct answer by using the codes given below.

- (A) (i) only
- (B) (i) and (ii) only
- (C) (i) and (iii) only
- (D) (i), (ii) and (iii)

28. All of the following are the assumptions regarding the error terms in the simple regression model, *except*

- (A) normality
- (B) unit variance
- (C) constant variance
- (D) zero mean

29. The combination AB of attributes is known as the class of

- (A) zero order
- (B) first order
- (C) second order
- (D) None of the above

30. The notation ABC represents

- (A) combination of the attributes A , B and C
- (B) cell in a contingency table
- (C) the frequency of the class ABC
- (D) the proportion of an attribute ABC

31. The relation between Yule's Q and the coefficient of colligation Y is

(A) $Q = \frac{Y}{(1+Y^2)}$

(B) $Q = \frac{2Y}{(1+Y^2)}$

(C) $Q = \frac{Y}{(1+2Y^2)}$

(D) $Q = \frac{2Y}{(1+2Y)^2}$

32. The probability of any event can take values between

- (A) $-\infty$ to ∞
- (B) 0 to ∞
- (C) -1 to 1
- (D) 0 to 1

33. The probability of the intersection of two mutually exclusive events is always

- (A) $-\infty$
- (B) 0
- (C) 1
- (D) Depends on the situation considered

34. If $P(A) = \frac{1}{4}$, $P(B) = \frac{2}{5}$ and $P(A \cup B) = \frac{1}{2}$, then find $P(A^c \cup B^c)$, where A and B are two mutually exclusive events connected with a random experiment E and, A^c and B^c are the complementary events of A and B , respectively.

- (A) 0.85
- (B) 0.58
- (C) 0.80
- (D) 0.50

35. With a pair of dice thrown at a time, the probability that the sum of the numbers obtained is more than 9 is

- (A) $\frac{5}{18}$
- (B) $\frac{7}{36}$
- (C) $\frac{1}{6}$
- (D) $\frac{5}{6}$

36. The chance of winning of a race by horse A is $\frac{1}{5}$ and that of B is $\frac{1}{6}$. The probability that the race will be won by both A and B together is

- (A) $\frac{1}{3}$
- (B) $\frac{1}{15}$
- (C) $\frac{11}{30}$
- (D) $\frac{1}{30}$

37. There are two groups of students, one group consisting of 4 boys and 2 girls and the other group consisting of 3 boys and 1 girl. One student is selected from each group at random. The probability of selection of one boy and one girl is

- (A) 1
- (B) $\frac{1}{9}$
- (C) $\frac{5}{12}$
- (D) $\frac{5}{6}$

38. A bag contains 3 white and 5 red balls. A game is played such that a ball is drawn, its colour is noted and it is replaced with two additional balls of the same colour. The selection is made 3 times. The probability that a white ball is selected at each trial is

- (A) $\frac{7}{64}$
- (B) $\frac{21}{44}$
- (C) $\frac{105}{512}$
- (D) $\frac{9}{320}$

39. In a library, there are 40% Mathematics books and remaining 60% are Science books. It is known that 2% of the Mathematics books are in Hindi and 1% of the Science books are in Hindi. If one book is taken out at random and is found to be in Hindi, the probability that it is a Science book is

- (A) $\frac{2}{9}$ (B) $\frac{3}{7}$
 (C) $\frac{6}{13}$ (D) $\frac{1}{4}$

40. The probabilities of Mr. *M* and Mr. *J* not living for one more year are $\frac{1}{9}$ and $\frac{1}{7}$, respectively. The probability of living one more year of either one or both is

- (A) $\frac{20}{21}$ (B) $\frac{62}{63}$
 (C) $\frac{14}{63}$ (D) $\frac{5}{21}$

41. Given that $E(X^2) = \frac{91}{6}$, then the value of $E(2X^2 + 1)$ is

- (A) $\frac{92}{3}$ (B) $\frac{90}{3}$
 (C) $\frac{94}{3}$ (D) $\frac{91}{3}$

42. If *X* is a random variable having p.d.f. $f(x)$, then $E(X)$ is the

- (A) arithmetic mean
 (B) geometric mean
 (C) harmonic mean
 (D) first quartile

43. If *X* and *Y* are two random variables and their expected values are \bar{X} and \bar{Y} respectively, then

- (A) $E[(X - \bar{X})(Y - \bar{Y})] = 1$
 (B) $E[(X - \bar{X})(Y - \bar{Y})] = c$, a constant
 (C) $E[(X - \bar{X})(Y - \bar{Y})] = 0$
 (D) $E[(X - \bar{X})(Y - \bar{Y})] = \frac{1}{n}$, where *n* is the number of ^{*n*} values of *X* and *Y*

44. The mean and variance of a binomial distribution are 8 and 4, respectively. Then $P(X = 1)$ is equal to

- (A) $\frac{1}{2^{12}}$
 (B) $\frac{1}{2^4}$
 (C) $\frac{1}{2^6}$
 (D) $\frac{1}{2^8}$

45. If *X* and *Y* are two Poisson variates such that $X \sim P(1)$ and $Y \sim P(2)$, then the probability of $P(X + Y < 3)$ is

- (A) e^{-3}
 (B) $3e^{-3}$
 (C) $4e^{-3}$
 (D) $8 \cdot 5e^{-3}$

46. A box contains 12 items of which 4 are defective. A person selects 6 items from the box. The expected number of defective items out of his selected items is
- (A) 2
(B) 3
(C) $\frac{3}{2}$
(D) 4
47. The family of parametric distributions for which mean and variance **do not** exist is
- (A) Polya distribution
(B) Cauchy distribution
(C) negative binomial distribution
(D) geometric distribution
48. The distribution(s) possessing the memoryless property is/are
- (A) geometric distribution
(B) exponential distribution
(C) both geometric and exponential distribution
(D) None of the above
49. For a normal distribution, QD, MD and SD are in the ratio [where QD = Quartile Deviation, MD = Mean Deviation, SD = Standard Deviation]
- (A) 5 : 6 : 7
(B) 10 : 12 : 15
(C) 2 : 3 : 4
(D) 1 : 2 : 3
50. The Student's t distribution was given by
- (A) G. W. Snedecor
(B) R. A. Fisher
(C) W. S. Gosset
(D) T. S. Student
51. Binomial distribution tends to Poisson distribution when
- (A) $n \rightarrow \infty, p \rightarrow 0, np = \lambda$ (finite)
(B) $n \rightarrow \infty, p \rightarrow \frac{1}{2}, np = \lambda$ (finite)
(C) $n \rightarrow 0, p \rightarrow 0, np \rightarrow 0$
(D) $n \rightarrow \infty, p \rightarrow 0, np \rightarrow \lambda + k, k$ is a constant
52. Non-parametric methods are based on
- (A) mild assumptions
(B) stringent assumptions
(C) no assumption
(D) None of the above
53. Which of the following non-parametric tests is analogous to the Chi-square test of goodness of fit?
- (A) Mann-Whitney U test
(B) Kolmogorov-Smirnov test
(C) Wilcoxon signed-rank test
(D) Ordinary sign test

54. In 30 tosses of a coin, the following sequence of heads (H) and tails (T) is obtained :

H T T H T H H H T H H T T H T
 H T H H T H T T H T H H T H T

The number of runs is

- (A) 30 (B) 28
 (C) 22 (D) 20
55. The Kruskal-Wallis test is meant for
- (A) one-way classified data
 (B) two-way classified data
 (C) cross-sectional data
 (D) non-classified data
56. The appropriate test to test the randomness of a sample is
- (A) sign test
 (B) median test
 (C) Page's test
 (D) run test
57. If $\{X_n\}$ is a sequence of random variables and $\{\mu_n\}$ is the sequence of their respective expectations, then $\{X_n\}$ satisfies weak law of large numbers (WLLN) if

- (A) $\bar{X}_n \xrightarrow{L} \bar{\mu}_n$
 (B) $\bar{X}_n \xrightarrow{P} \bar{\mu}_n$
 (C) $X_n \xrightarrow{L} \mu_n$
 (D) $X_n \not\rightarrow \mu_n$

[Notations have their usual meanings]

58. According to Chebyshev's inequality, the probability that the random variable X

- (A) differs from its mean by more than 2 standard deviations is less than or equal to 0.75
 (B) will lie within 2 standard deviations of its mean is greater than or equal to 0.75
 (C) will lie within 2 standard deviations of its mean is greater than or equal to 0.25
 (D) will lie within 2 standard deviations of its mean is greater than or equal to 0.95

59. The F -distribution curve, in respect of tails, is

- (A) +vely skewed
 (B) -vely skewed
 (C) symmetrical
 (D) Any of the above

60. The relation between t and χ^2 statistics is

- (A) $t_1^2 = \chi_\infty^2$
 (B) $t_n^2 = \chi_1^2$
 (C) $t_\infty^2 = \chi_1^2$
 (D) $t_1^2 = \chi_1^2$

61. A hypothesis under test is called

- (A) simple hypothesis
 (B) composite hypothesis
 (C) null hypothesis
 (D) true hypothesis

62. The level of significance is the probability of
- committing Type I error
 - committing Type II error
 - not committing any error
 - None of the above
63. Which of the following statements is/are correct?
- The critical region depends on
- the level of significance.
 - the nature of the observations.
 - the probability of Type II error.
 - the nature of the alternative hypothesis
 - the value of the test statistic.
- Only statement (i)
 - Statements (ii) and (iii)
 - Statements (i), (iv) and (v)
 - Statements (i) and (iv)
64. It was claimed that the average life of dry battery cells is 60 hours. A sample of 441 cells had mean life of 42 hours with a variance of 81 hours². By using this data and carrying out the appropriate test, we can
- refute the claim
 - accept the claim
 - No decision is possible
 - No test is possible
65. The mean and standard deviation of a set of 12 values are 15 and 5, respectively. To test whether population mean $\mu = 10$, the Student's t statistic was calculated. Now if each sample value is increased by 2, the value of the statistic t will be
- same
 - increased
 - decreased
 - Depends on the values
66. If N is the stopping time for a Sequential Probability Ratio Test (SPRT), then which of the following is correct?
- $P_r(N < \infty) = \frac{1}{4}$
 - $P_N(N < \infty) = \frac{1}{2}$
 - $P_N(N < \infty) = \frac{3}{4}$
 - $P_N(N < \infty) = 1$
67. Consider the following table :
- | | | | | | |
|--------|-----|---|---|-----|----|
| x | : 1 | 2 | 3 | 4 | 5 |
| $f(x)$ | : 2 | 5 | 7 | a | 32 |
- The missing value 'a' of the above table is
- 14
 - 15
 - 16
 - 17
68. The n th divided difference of an n th degree polynomial is
- zero
 - a variable
 - a constant
 - a function

69. A function is said to be continuous in an interval $[a, b]$ if it is continuous at _____ of the interval.
 (A) four points
 (B) two points
 (C) one point
 (D) any point
70. If c is a solution of $f'(x)=0$ and if $f''(c)=0$, then the function $f(x)$ has a
 (A) maximum at $x=c$
 (B) minimum at $x=c$
 (C) saddle point at $x=c$
 (D) None of the above
71. If h is the increment in the variable x , then $\left(\frac{\Delta^2}{E}\right)x^2$ is equal to
 (A) $2h$ (B) $2h^2$
 (C) $2h^3$ (D) $2h^4$
72. The error in evaluating $\int_1^2 x^2 dx$ by using Simpson's one-third rule, by dividing the interval $(1, 2)$ into 4 equal parts is
 (A) 0 (B) 1.5
 (C) 1.52 (D) 1
73. The mean difference among 9 paired observations is 15.0 and the standard deviation of the differences is 5.0. The value of the statistic t will be
 (A) 27 (B) 9
 (C) 3 (D) 0
74. When an index number is calculated for several variables, it is called
 (A) simple index
 (B) volume index
 (C) composite index
 (D) wholesale price index
75. Fisher's ideal formula for index numbers **does not** satisfy
 (A) time reversal test
 (B) unit test
 (C) factor reversal test
 (D) circular test
76. Laspeyres index number possesses
 (A) no bias
 (B) upward bias
 (C) downward bias
 (D) complete accuracy
77. Cost of living index numbers (CLIN) are also used to find real wages by the process of
 (A) deflating the index number
 (B) splicing of index number
 (C) base shifting
 (D) aggregating
78. Vital rates are customarily expressed as
 (A) percentages
 (B) per thousand
 (C) per million
 (D) unit free absolute numbers

79. The death rate of babies under one month is known as
- maternal mortality rate
 - infant mortality rate
 - neonatal mortality rate
 - All of the above
80. Life table is also known as
- mortality table
 - survival table
 - fertility table
 - Yates table
81. The relation between NRR and GRR is
- NRR and GRR are usually equal
 - NRR can never exceed GRR
 - NRR is generally greater than GRR
 - No such relation exists between them
82. Which of the following are the major sources of 'Health Statistics' in India?
- Sample Registration System (SRS)
 - Civil Registration System (CRS)
 - National Family Health Survey (NFHS)
- Select the correct answer using the codes given below.
- (i) and (ii) only
 - (i) and (iii) only
 - (ii) and (iii) only
 - (i), (ii) and (iii)
83. Which of the following is the correct sequence of stages in problem solving?
- Precise formulation, analysis, computation of the problem
 - Designing, coding, analysis, debugging of the problem
 - Coding, precise formulation, computation, debugging of the problem
 - Coding, compilation, designing, debugging, executing the program
84. Which of the following statements is true?
- Population mean increases with the increase in sample size.
 - Population mean decreases with the increase in sample size.
 - Population mean decreases with the decrease in sample size.
 - Population mean remains unaltered with the change in sample size.
85. If we have a sample of size n from a population of N units, then the finite population correction is
- $\frac{N-1}{N}$
 - $\frac{N-1}{n}$
 - $\frac{N-n}{N}$
 - $\frac{N-n}{n}$

86. Sampling error can be reduced by
- choosing a proper probability sampling
 - selecting a sample of adequate size
 - using a suitable formula for estimation
 - All of the above
87. The probability of accepting a lot with fraction defective P_t is known as
- consumer's risk
 - producer's risk
 - type I error
 - confidence probability
88. The decision about the acceptance or rejection of a lot through a single sampling plan is reached by considering
- the acceptance quality level
 - lot tolerance percentage defective
 - the number of defectives in the sample and the acceptance number
 - None of the above
89. If population variance of an infinite population is σ^2 and a sample of 25 items is selected from this population, then the standard error of the sample mean is
- $\frac{\sigma^2}{25}$
 - $\frac{\sigma}{5}$
 - $\frac{\sigma}{25}$
 - σ
90. A manager of a cyber cafe says that the number of customers visiting the cafe on weekdays followed a binomial distribution. Using available data, which of the following techniques can be used to test the hypothesis at a given level of significance?
- Test of significance of mean
 - Chi-square test of goodness of fit
 - Ordinary sign test
 - Correlation analysis
91. The mathematical model of a linear programming problem (LPP) is important because
- it helps in converting the verbal description and numerical data into mathematical expression
 - decision makers prefer to work with formal models
 - it captures the relevant relationship among the decision factors
 - it enables the use of algebraic techniques
92. Which of the following statements is correct?
- Every LPP has a unique solution.
 - An LPP has no solution if the feasible region is unbounded.
 - Every LPP has at least one optimal solution.
 - If an LPP has two optimal solutions, then it has infinitely many solutions.

93. In a Randomised Block Design (RBD) having 5 treatments and 4 blocks, a treatment is added. Then the increase in error df will be
 (A) 1 (B) 2
 (C) 3 (D) 4
94. In a 5×5 Latin Square Design (LSD) with one missing value, the totals of the row, column and treatment with one missing observation are 25, 40 and 35, respectively and the total of all the available observations is 100. The estimate of the missing value is
 (A) 30 (B) 25
 (C) 20 (D) 15
95. In design of experiments, randomization is necessary to make the estimates
 (A) valid
 (B) accurate
 (C) precise
 (D) optimal
96. If interaction AB is confounded in a 2^3 -factorial experiment, the entries of the two blocks in a replicate will be
 (A) B1 : (1) ab a b
 B2 : abc c bc ac
 (B) B1 : (1) ab c abc
 B2 : b a bc ac
 (C) B1 : (1) ab ac bc
 B2 : abc a b c
 (D) B1 : abc bc ac c
 B2 : ab a b (1)
97. The term 'recession' is attached to which component of a time series?
 (A) Trend
 (B) Seasonal
 (C) Cyclical
 (D) Irregular
98. Out of a number of models fitted to a time series data, the best model can be adjudged by
 (A) the estimates of the parameters
 (B) the value of the residual sum of squares
 (C) the shape of the curve
 (D) All of the above
99. Moving average method of determining trend in a time series data removes the effect of
 (A) short-term movements
 (B) long-term movements
 (C) cyclic variations
 (D) both long- and short-term movements
100. The Central Government organisation NSO is under the purview of
 (A) Ministry of Planning and Development
 (B) Ministry of Finance
 (C) Ministry of Human Resource Development
 (D) Ministry of Statistics and Program Implementation

SPACE FOR ROUGH WORK

SPACE FOR ROUGH WORK

SEAL

STAT/ARO/III/24/29-A

16

24T—10×4