1118 Warning:- Please write your Roll No. in the space provided and sign.   Roll No-----------------
Statistics (Objective)   (Session 2015-17 to 2017-19) .   Sig. of Student -----------------
(Inter Part – I)   Paper (I)
Time Allowed:- 20 minutes   **PAPER CODE 2181**   Maximum Marks:- 17

Note:- You have four choices for each objective type question as A, B, C and D. The choice which you think is correct; fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question. Write **PAPER CODE**, which is printed on this question paper, on the both sides of the Answer Sheet and fill bubbles accordingly, otherwise the student will be responsible for the situation. Use of Ink Remover or white correcting fluid is not allowed.

Q. 1

1) Eye colour is a
   (A) Constant   (B) Continuous variable (C) Qualitative variable   (D) Quantitative variable

2) The process of arranging data into rows and columns is called.
   (A) Tabulation   (B) Classification   (C) Frequency distribution   (D) Sampling

3) The number of values falling in a particular class or category is called
   (A) Relative frequency   (B) Cumulative frequency   (C) Class frequency   (D) All a, b, c

4) The algebric sum of deviations of observations from their mean is always.
   (A) One   (B) Zero   (C) Greater than one   (D) Less than zero

5) The Geometric Mean is impossible if any of the observations is
   (A) Negative   (B) Greater than one   (C) One   (D) Fractional

6) If "c" is any Constant, then variance of "c" is
   (A) c   (B) c^2 (C) Zero   (D) One

7) The Mean Deviation is least if deviations are taken from
   (A) Mean   (B) GM   (C) Mode   (D) Median

8) For a Leptokurtic distribution the moment ratio
   (A) $b_2 > 3$ (B) $b_2 < 3$ (C) $b_2 = 3$ (D) $b_2 = 0$

9) The most suitable average in chain indices is
   (A) Median   (B) A.M   (C) G.M   (D) H.M

10) Fisher's price Index number is
    (A) $\sqrt{Paashe \times Laspeyre}$ (B) $Paasche + Laspeyre$ (C) $Paasche \times Laspeyre$ (D) $\sqrt{Paasche + Laspeyre}$

11) The event consisting of more than one sample points is called
    (A) Compound event   (B) Simple event   (C) Null event   (D) Independent event

12) The conditional probability of event A given that event B has already occurd is
    (A) $P(B/A)$ (B) $P(A/B)$ (C) $P(A \cup B)$ (D) $P(A \cap B)$

13) X and Y are two independent variables, then E(XY) is.
    (A) XE(Y)   (B) YE(X)   (C) E(X) + E(Y)   (D) E(X) E(Y)

14) Let "a" and "b" are any two constants and "x" is a random variable, then var(ax+b) is equal to
    (A) a^2 var (X)   (B) a var (X)   (C) var (X)   (D) a

15) The mean, median and mode of a binomial distribution will be equal, when
    (A) p > q   (B) p < q   (C) p = q   (D) p < 0

16) The number of parameters of Hypergeometric distribution are
    (A) 2   (B) 3   (C) 1   (D) 4

17) The mean of binomial distribution is
    (A) Equal to standard Deviation   (B) Equal to variance   (C) Greater than variance   (D) Less than variance

Statistics (Subjective)   (Session 2015-17 to 2017-19)   Paper (I)
Time Allowed: 2.40 hours   (Inter Part - I) Maximum Marks: 68

Section ------------------ I

2.   Answer briefly any Eight parts from the followings:- $8 \times 2 = 16$

(i)   Write the names of two branches of statistics.

(ii)   Write two examples each for Continuous and Discrete variable.

(iii)   Define Geometric Mean.   (iv) If mean = 75 and mode = 70 find median.

(v)   Define Arithmetic mean.   (vi) State when it is impossible to calculate Harmonic Mean.

(vii)   The arithmetic mean of 20 values is 40.5 what is the total of values?

(viii)   Define Link Relatives.   (ix) What do you meant by Consumer's Price Index Number?

(x)   Calculate Fisher's Index number if $\sum p_o q_o = 1850$, $\sum p_1 q_1 = 2100$, $\sum p_o q_1 = 2050$, $\sum p_1 q_o = 2000$

(xi)   Define composite price index number.

(xii)   What is the name of the base year weighted price index number?

3.   Answer briefly any Eight parts from the followings:- $8 \times 2 = 16$

(i)   Define classification.   (ii) Define frequency distribution.   (iii) Define Standard Deviation.

(iv)   If $Q_1 = 20$, Quartile Deviation = 30, Find Q_3

(v)   If $\bar{X} = 36$, $S^2 = 36$, find coefficient of variation.   (vi) Define the skewness.

(vii)   Given Mean = 50, Median = 48, SD = 6 Find coefficient of Skewness.

(viii)   What is a random experiment?   (ix) Define independent events.

(x)   State the general rule of addition for probability.

(xi)   If P(A) = 0.4, P(B) = 0.3, Find $P(\bar{A})$, $P(\bar{B})$

(xii)   What is the range of probability?

4.   Answer briefly any Six parts from the followings:- $6 \times 2 = 12$

(i)   Define Discrete Random Variable.   (ii) Discuss two properties of Distribution function.

(iii)   Discuss two properties of probability density function.

(iv)   What is meant by expected value of a random variable?

(v)   If $E(X) = 1.15$ then find $E(3X + 5)$

(vi)   Write any two properties of binomial distribution

(vii)   In Binomial distribution Mean = 6, Var = 2.4 Find its parameters.

(viii)   If $x \sim h(x; 11, 5, 4)$. Find Mean and Variance of hypergeometric distribution.

(ix)   What are difference between Binomial and Hypergeometric distribution?

P.T.O   1156A -- 1118 -- 2300

SGD-11-18

Note: Attempt any three questions. (8 x 3 = 24)

5 (a) Calculate the median and mode from the following data.

X	2.5	7.5	12.5	17.5	22.5
f	7	18	25	30	20

(b) The arithmetic mean of two items is 12.5 and geometric mean is 10. Find two items.

6 (a) For the following frequency distribution find mean deviation

Ages	5 – 10	10 – 15	15 – 20	20 – 25
f	10	20	30	15

(b) Given the following results, find Combined Co-efficient of Variation.

$n_1 = 100 \quad S_1 = 2.4 \quad \overline{X_1} = 12.6$

$n_2 = 120 \quad S_2 = 4.2 \quad \overline{X_2} = 15.8$

7 (a) Compute chain indices using mean as an average from the following prices of commodities.

Years	A	B	C
2013	84	85	114
2014	80	99	122
2015	90	91	131
2016	78	92	142

(b) A bag contains 7 blue, 5 Black and 4 Red balls. If two balls are drawn at random, find the probability that (i) Both balls are blue (ii) One is black and other is Red.

8 (a) Let X be a random variable with probability distribution as

x	-1	0	1	2	3
P (X=x)	0.125	0.500	0.200	0.050	0.125

Find $E(X)$, $E(X^2)$ and $P(X > 2)$

(b) A continuous random variable X has probability density function as $f(x) = \begin{cases} cx & for \quad 0 < X < 2 \\ 0 & elsewhere \end{cases}$

Find (i) c (ii) $P(1 < X < 1.5)$

9(a) An event has probability $P = \dfrac{3}{5}$ Find complete binomial distribution for n = 5

(b) An urn contains nine balls, Five of them are red and four blue. Three balls are drawn without replacement. Find the probability distribution of X = the number of red balls drawn?