Time Allowed: -20 minutes Note: - You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, the content of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles are all in bubbles accordingly, otherwise the student will be responsible for the situation. Use of Ink Remove white correcting fluid is not allowed. 1. The range of normal distribution is (A) 0 to ∞ (B) $-\infty$ to 0 2. The number of parameters of normal distribution is (A) 0 to ∞ (B) Two (C) Three 3. The normal distribution has maximum ordinate at $X = (A) \mu$ (B) σ (C) 1 4. The numerical value computed from sample is called (A) Population (B) Statistic (C) Constant (A) $n \le N$ (B) $n > N$ (C) $n \ne N$ (D) Variable 5. In sampling with replacement (A) Only once (B) Marker once (C) Less than once (D) None of these 7. When $H_{\sigma}: \mu \ge \mu_{\sigma}$ then H_{τ} is (A) $\mu \ne \mu_{\sigma}$ (B) $\mu > \mu_{\sigma}$ (C) $\mu \ne N$ (D) $\mu \le \mu_{\sigma}$ 8. Which of the following is simple hypothesis (A) $\mu \le 1$ (B) $\mu > 1$ (C) $\mu \ne 1$ (D) $\mu \le 1$ (D) $\mu \le 1$ (D) In regression $\sum \hat{Y}$ is equal to (A) 0 (B) $\sum Y$ (C) $\sum Y^2$ (D) bX 11. Two variables are $\sum (\mu + \mu) = \mu = \mu$ (C) 1 12. The sample correlation co-efficient is denoted by (A) 1 (B) $\mu > 1$ (C) $\mu \ne 1$ (D) $\mu = 1$ (D) Fractional 14. The range of rank correlation co-efficient is denoted by (A) 1 (D) (B) Ogive (C) Scatter diagram (D) Histogram 15. The graph of time series is called (A) Historigram (B) Ogive (C) Scatter diagram (D) Histogram 16. The increased demand of air cooler in summer season is (A) Trend (B) Scanner (C) Printer (D) Speaker		(Inter Part – II) s (Objective)	(Session 2015 – 17	Pape	of Student
Note: You have four choices for each objective type question as A, B, C and D. The choice which you mak a correct hat circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles result in zero mark in that question. Write PAPER CODE, which is printed on this question paper, on the both sides of Answer Sheet and fill bubbles accordingly, otherwise the student will be responsible for the situation. Use of lack Remove white correcting fluid is not allowed. 1. The range of normal distribution is (A) $0 \text{ to } 0 \text{ (B)} - \infty \text{ to } 0 \text{ (C)} - \infty \text{ to } + \infty$ (A) $0 \text{ to } \infty \text{ (B)} T \text{ wo}$ (C) Three 3. The normal distribution has maximum ordinate at $X = (A) \mu$ (B) σ (C) 1 (D) σ 4. The numerical value computed from sample is called (A) Population (B) Statistic (C) Constant (A) $n \le N$ (B) $n > N$ (C) $n \ne N$ (D) Variable 5. In sampling without replacement (A) $n \le N$ (B) $n > N$ (C) $n \ne N$ (D) N $\le n$ 6. In sampling with replacement a sampling unit may appear in the sample (A) Only once (B) Material fonce (C) Less than once (D) None of these 7. When $H_s: \mu \ge \mu_s$ then H_t is (A) $\mu \ne \mu_s$ (B) $\mu > \mu_s$ (C) $\mu \ne N$ (D) $\mu \le \mu_s$ 8. Which of the following is simple hypothesis (A) $\mu \le N$ (B) Estimator (B) Estimate (C) Estimation (D) Bias 10. In regression $\sum \hat{Y}$ is equal to (C) $\sum Y^2$ (D) bX 11. Two variables are $\sum (N + k) = k = k$ (D) $k \ge N$ 12. The sample correlation co-efficient is denoted by (A) $N \le N$ (B) $N \ge N$ (C) $N \ge N$ (D) $N \ge N$ 13. The strength of relation between attributes is (A) -1 to 0 (B) O to 1 (C) -1 to +1 (D) - ∞ to + ∞ 14. The range of rank correlation co-efficient is (A) -1 to 0 (B) O to 1 (C) -1 to +1 (D) - ∞ to + ∞ 15. The graph of time series is called (A) Historigram (B) Ogive (C) Scatter diagram 16. The increased demand of air cooler in summer season is (A) Trend (B) Scannar (C) Printer (D) Irregular (D) Irregular (D) Irregular (D) Irregular	T' A1	lawed: 20 minutes	PAPER CO		
1. The range of normal distribution is (A) $0 \text{ to } \infty$ (B) $-\infty \text{ to } 0$ (C) $-\infty \text{ to } +\infty$ (D) $0 \text{ to } n$ 2. The number of parameters of normal distribution is (A) One (B) Two (C) Three (D) Four 3. The normal distribution has maximum ordinate at $X = (A) \mu$ (B) σ (C) 1 (D) 0 4. The numerical value computed from sample is called (A) Population (B) Statistic (C) Constant (D) Variable 5. In sampling without replacement (A) $n \le N$ (B) $n > N$ (C) $n \ne N$ (D) $N \le n$ 6. In sampling with replacement a sampling unit may appear in the sample (A) Only once (B) Maximization and the sample (C) Less than once (D) None of these 7. When $H_o: \mu \ge \mu_o$ then H_1 is (A) $\mu \ne \mu_o$ (B) $\mu > \mu_o$ (C) $\mu \le M$ (D) $\mu \le \mu_o$ 8. Which of the following is simple hypothesis (A) $\mu < 15$ (B) $\mu > 15$ (C) $\mu \le 15$ (D) $\mu = 15$ 9. A specific value computed by using sample data is (A) Estimator (B) Estimate (C) Estimation (D) Bias 10. In regression $\sum \hat{Y}$ is equal to (A) 0 (B) $\sum Y$ (C) $\sum Y^2$ (D) bX 11. Two variables are $\sum (M) = M + M + M + M + M + M + M + M + M + M$	Note:- Y that circle result in z Answer S	ou have four choices for e in front of that question zero mark in that question. heet and fill bubbles acco	number. Use marker or pen Write PAPER CODE, which rdingly, otherwise the studen	ch is printed on this question it will be responsible for the s	paper, on the both sides of ituation. Use of Ink Remove
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(A) Historigram (B) Ogive (C) Scatter diagram (D) Histogram 16. The increased demand of air cooler in summer season is (A) Trend (B) Seasonal (C) Cyclical (D) Irregular 17. Which of these is not output device (A) Monitor (B) Scanner (C) Printer (D) Speaker		15. The graph of time	series is called		
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(A) Monitor (B) Scanner (C) Printer (D) Speaker		16. The increased den (A) Trend	(B) Seasonal		(D) Irregular
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1282A -- 1218 -- 3000

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Warning:- Please, do not write anything on this question paper except your Roll No.

1218 (Inter Part-II)

(Session 2015 – 17 & 2016 – 18)

Statistics (Subjective)

SECTION -----I Time Allowed: 2.40 hours Maximum Marks: 68

Write short answer of any eight parts.

 $8 \times 2 = 16$

Paper (II)

(i) If $X \sim N$ (24,16), then find quartiles Q_1, Q_2, Q_3 . (ii) If $X \sim N$ (15,4), then find the value of Z if X = 18. (iii) Find maximum ordinate of the normal curve If $\sigma = 4$. (iv) Find the standard deviation for a normal distribution. If Quartile deviation is '6'. (v) Write any four properties of normal distribution. (vi) Define the term Estimation. (vii) What is meant by point estimator? (viii) What is meant by type-I error? (ix) Define the term test statistic. (x) What are the critical values for test statistic? (xi) What is Central Processing unit? (xii) What is a language translator?

Write short answer of any eight parts. 3.

 $8 \times 2 = 16$

(i) Explain the term target population. (ii) What is sampling. (iii) What is sampling error. (iv) Explain the term Non-probability sampling. (v) What is parameter and statistic. (vi) Name four probability sampling techniques. (vii) Explain the term regressor. (viii) Find the Y-intercept and slope of the line $\hat{Y} = 5 - 2X$. (ix) Define the term coefficient of correlation. (x) Differentiate between regression and correlation. (xi) Let $S_{xy} = 30$, $S_x = 2.5$, $S_y = 20$ find (Y). (xii) When correlation between X and Y will be positive and negative.

4. Write short answer of any six parts. $\times 2 = 12$

(i) Define co-efficient of association. (ii) Discuss Positive and Negative levels of Attributes. (iii) For a Given data if (AB) = 110, $(\alpha B) = 90$, $(A\beta) = 290$ $(\alpha\beta) = 510$ Discuss Association. (iv) Define Contigency table. (v) Define rank correlation co-efficient. (vi) What are the phases of a business cycle? (vii) Give two examples of seasonal variations. (viii) What is forecasting? (ix) Define signal and Noise?

SECTION -

Note: Attempt any three questions. Each question carries equal marks.

- 5. (a) For a certain normal distribution the first moments about 10 is 40 and Fourth moments about 50 is 48. Find its more and S.D.
- (b) In a normal distribution 31% items are under 45 and 8% are over 64. Find mean and S.D.
 (a) Draw all possible samples of size 2 without replacement from a population consisting of 6. (a) Draw all possible sure 3,6,9,16, from the sampling distribution of mean and verify results.

(i)
$$\mu_{\bar{z}} = \mu$$
 (ii) $\sigma_{\bar{z}}^2 = \frac{\sigma^2}{n} \frac{N-n}{N-1}$

- (b) Given that $n_1 = 2$, $\mu_1 = 6$ $\sigma_1^2 = 2.67$, $n_2 = 2$, $\mu_2 = 6$ $\sigma_2^2 = 0.67$ calculate (i) $\mu_{\bar{z}_1 - \bar{z}_1}$ (ii) $\sigma_{\bar{z}_1 - \bar{z}_1}^2$ If sampling is done with replacement.
- 7. (a) A random sample of size n = 400 selected from a population of N = 10,000 with $\sigma^2 = 100$. The sample mean is found to be $\overline{X} = 80$. Construct a 95% confidence interval for μ .
 - (b) Test the null hypothesis $H_o: \mu = 100$ against alternative hypothesis $H_1: \mu < 100$ at $\alpha = 5\%$ using the data given in Part (a).
- 8. (a) Compute the regression co-efficients n=15, $S_X=7.933$, $S_Y=16.627$, $\sum (X-\overline{X})(Y-\overline{Y})=148$
 - (b) For a given set of data, we have r = 0.60, $S_x = 1.50$ $S_y = 2.0$, $\overline{X} = 10$, $\overline{Y} = 20$ Find the equations of the two regression lines of Y on X and X on Y.
- 9. (a) From the following table, test the hypothesis that the flower colour is independent of flatness of leaf. Use $\alpha = 0.05$ les 3

	Flat Leaves	Lean Leaves
White Flowers	19	16
Red Flowers	20	15

(b) Fit a linear trend to the following information for the years 1986 to 1992 (Both inclusive) $\sum X = 0$ $\sum Y = 245$ $\sum X^2 = 28$ $\sum XY = 66$ Also compute trend values.

1256A-- 1218 -- 1800

SGD-12-18