

M.Phil./Ph.D. ADMISSION TEST, 2017**Paper II****Subject 138 : STATISTICS**

Roll No. (In figures)(In words)

OMR Sheet Sr. No.

Signatures of Invigilators 1. 2.

Names of Invigilators 1. 2.

Time : 2½ Hours

Max. Marks : 300

GENERAL INSTRUCTIONS

1. Read the instructions given on the Question Booklet and OMR Sheet before starting the answers. All the entries should be filled by **blue or black ball point pen.**

2. The Question Booklet contains **100** questions and all questions are compulsory.

3. Each question is of **3** marks. For each wrong answer **1** mark will be deducted.

4. Candidates must ensure that the Question Booklet issued to them has all the questions. Defective Question Booklet can be got changed within **10** minutes.

1. प्रश्नों के उत्तर लिखने से पूर्व प्रश्न-पुस्तिका और ओ.एम.आर. शीट पर दिये हुए निर्देश पढ़ें। सभी प्रविष्टियाँ नीले अथवा काले बॉल पॉइन्ट पेन से भरें।

2. प्रश्न-पुस्तिका में **100** प्रश्न हैं और सभी प्रश्न अनिवार्य हैं।

3. प्रत्येक प्रश्न **3** अंक का है। प्रत्येक गलत उत्तर के लिए **1** अंक काटा जायेगा।

4. परीक्षार्थी सुनिश्चित कर लें कि उन्हें जो प्रश्न-पुस्तिका दी गई है उसमें सभी प्रश्न अंकित हैं। त्रुटिपूर्ण प्रश्न-पुस्तिका **10** मिनट की अवधि में बदलाई जा सकती है।

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| <p>5. In case of any discrepancy between English and Hindi versions of a question, English version will be taken as correct, wherever there are both versions.</p> <p>6. Select and darken the circle corresponding to the answer (A) or (B) or (C) or (D) in OMR sheet.</p> <p>7. In case more than one circle is darkened in a question, it will not be evaluated.</p> <p>8. Do not make any stray marks on OMR sheet and do not fold it.</p> <p>9. Any candidate found removing pages from the Question Booklet will be disqualified and prosecuted.</p> <p>10. Use of unfair means will disqualify the candidate from the examination.</p> <p>11. Cell phone, calculator or any such devices are not allowed in the Examination Hall.</p> <p>12. No candidate is allowed to leave the seat before handing over the original OMR sheet to the invigilator. Candidate can take Question Booklet and Carbon copy of OMR sheet.</p> | <p>5. किसी प्रश्न के अंग्रेजी और हिन्दी रूपान्तरणों में भिन्नता होने की स्थिति में अंग्रेजी रूपान्तरण सही माना जायेगा जहाँ प्रश्न-पत्र दोनों भाषाओं में है।</p> <p>6. सही उत्तर का चयन करें तथा सम्बन्धित (A) अथवा (B) अथवा (C) अथवा (D) गोले को ओ.एम.आर. शीट में काला करें।</p> <p>7. किसी प्रश्न में एक से अधिक गोले को काला करने पर उसे जाँचा नहीं जायेगा।</p> <p>8. ओ.एम.आर. शीट पर किसी तरह का चिह्न न बनायें और न ही उसे मोड़ें।</p> <p>9. प्रश्न-पुस्तिका से पृष्ठ निकालते हुए पाये जाने पर परीक्षार्थी को अयोग्य घोषित किया जाएगा और उसके विरुद्ध विधिक कार्यवाही भी की जा सकती है।</p> <p>10. अनुचित साधनों का उपयोग करने पर परीक्षार्थी को परीक्षा के लिए अयोग्य घोषित कर दिया जायेगा।</p> <p>11. सेलफोन, संगणक और ऐसे किसी भी अन्य उपकरण को परीक्षा भवन में लाने की अनुमति नहीं होगी।</p> <p>12. ओ.एम.आर. शीट की मूल प्रति वीक्षक को सुपुर्द किये बिना किसी भी परीक्षार्थी को अपना स्थान छोड़ने की अनुमति नहीं है। परीक्षार्थी प्रश्न-पुस्तिका एवं ओ.एम.आर. शीट की कार्बन प्रति को अपने साथ ले जा सकेगा।</p> |
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1. The axiomatic definition of probability was given by :
 (A) Fisher
 (B) Tchebechev
 (C) Kolmogorov
 (D) Khinchin
2. The mode and mean of a asymmetrical distribution are 100 and 85 respectively. The most probable value of the median is :
 (A) 95
 (B) 87.5
 (C) 90
 (D) 91.5
3. Given $\Sigma x = 15$, $\Sigma x^2 = 55$ and $n = 5$, the variance of the series is :
 (A) 2
 (B) 8
 (C) 11
 (D) 3
4. Given the class frequencies $N = 100$, $(A) = 60$, $(B) = 70$, $(AB) = 40$, then $(\alpha\beta) =$
 (A) 40
 (B) 10
 (C) 30
 (D) 20
5. If $\mu'_1 = 2$, $\mu'_2 = 8$, $\mu'_3 = 45$, then $\mu_3 =$
 (A) 45
 (B) 16
 (C) 32
 (D) 13
6. If $f(x,y) = xy/96$, $0 \leq x \leq 4$; $1 \leq y \leq 5$
 $= 0$, otherwise
 then marginal density function of x is :
 (A) $x/8$
 (B) $y/8$
 (C) $x/12$
 (D) $y/12$
7. A frequency distribution is positively skewed and platykurtic if :
 (A) $\gamma_1 > 0$, $\beta_1 < 3$
 (B) $\gamma_1 > 0$, $\beta_2 = 3$
 (C) $\gamma_1 < 0$, $\beta_2 > 3$
 (D) $\gamma_1 < 0$, $\beta_2 = 3$
8. In a completely randomized design, there are 15 plots and 3 treatments. The degrees of freedom associated with error sum of squares is :
 (A) 10
 (B) 12
 (C) 14
 (D) 16
9. If the value of correlation between X and Y is 1, then correlation between X and $-\frac{1}{3}y$ is :
 (A) 1
 (B) $1/3$
 (C) $-1/3$
 (D) -1
10. Let X be a Poisson variate with parameter λ such that $P(X = 1) = P(X = 2)$. Then λ is :
 (A) 1
 (B) 2
 (C) 3
 (D) 4
11. For a random variable X, if $E(X) = 15$, $V(X) = 20$, then $P(5 < X < 25)$ is :
 (A) $\leq \frac{4}{5}$
 (B) $\geq \frac{4}{5}$
 (C) $\geq \frac{1}{5}$
 (D) $\leq \frac{1}{5}$
12. If X takes values $X_i = (-1)^i 2^i/i!$ with probability $1/2^i$ ($i=1,2,\dots$) then $E(X)$ is :
 (A) i
 (B) 2^i
 (C) $\log 1/2$
 (D) $\log 1/i$
13. Let $P(A/B) = 1/4$ and $P(B/A) = 1/3$, then $P(A)/P(B)$ is :
 (A) $3/4$
 (B) $4/3$
 (C) $1/2$
 (D) $1/12$

14. If $t_n^2 \sim F(n_1, n_2)$, then :
- (A) $n_1 = n_2 = n$
 (B) $n_1 = n, n_2 = 1$
 (C) $n_1 = 1, n_2 = n$
 (D) $n_1 = 1, n_2 = 1$
15. If two regression lines are identical, then the value of correlation coefficient is always :
- (A) -1
 (B) 1
 (C) -1 or $+1$
 (D) Zero
16. To get an idea of fertility variation of plots, the method used is :
- (A) Replication
 (B) Randomisation
 (C) Local Control
 (D) Uniformity Trials
17. Negative Binomial distribution NB ($x : r, p$) for $r = 1$ reduces to :
- (A) Geometric distribution
 (B) Binomial distribution
 (C) Poisson distribution
 (D) Hypergeometric distribution
18. Mode of Chi-Square distribution with n d.f. is :
- (A) $n - 2$
 (B) n
 (C) $n - 1$
 (D) $2n$
19. Let X have a Gamma distribution with parameter λ , then its mean is :
- (A) 2λ
 (B) λ
 (C) 3λ
 (D) $\lambda/2$
20. Let X have a Beta distribution of second kind with parameters (m, n) , then its mean is :
- (A) $n/(m - 1)$
 (B) $(m + n)/n$
 (C) $m/(n - 1)$
 (D) $n/(m + n)$
21. For an exponential distribution with probability density function $f(x) = e^{-x/2}/2, x \geq 0$, the mean and variance are given by :
- (A) $(1/2, 2)$
 (B) $(2, 1/4)$
 (C) $(1/2, 1/4)$
 (D) $(2, 4)$
22. In a Trivariate distribution : $r_{12} = 0.7, r_{23} = r_{31} = 0.5$, value of $r_{23.1}$ is :
- (A) 0.2524
 (B) 0.3425
 (C) 0.4325
 (D) 0.2425
23. Paired t -test is applicable when the observations in two samples are :
- (A) paired
 (B) correlated
 (C) equal in number
 (D) all the above
24. The ratio of between sample variance and within sample variance follows :
- (A) χ^2 - distribution
 (B) F - distribution
 (C) t - distribution
 (D) None of the above
25. If X is a random variable, then $E(t^x)$ is known as :
- (A) Characteristic function
 (B) Moment Generation function
 (C) Probability Generating function
 (D) the x^{th} moment
26. If X is a random variable, $E(1/X)$ is used to find :
- (A) arithmetic mean
 (B) harmonic mean
 (C) geometric mean
 (D) first central moment
27. Errors in Statistical Model are always taken to be :
- (A) independent
 (B) distributed as $N(0, \sigma_e^2)$
 (C) both (A) and (B)
 (D) neither (A) nor (B)

28. For a normal curve, the Q.D., M.D. and S.D. are in the ratio :
- (A) 5 : 6 : 7
 (B) 10 : 12 : 15
 (C) 2 : 3 : 4
 (D) none of the above
29. The distribution possessing the memoryless property is :
- (A) gamma distribution
 (B) geometric distribution
 (C) hypergeometric distribution
 (D) all the above
30. Equality of two population variances can be tested by :
- (A) Bartlett's test
 (B) F-test
 (C) both (A) and (B)
 (D) neither (A) nor (B)
31. If the sample size $n=2$, the student's t-distribution reduces to :
- (A) Cauchy's distribution
 (B) Normal distribution
 (C) F-distribution
 (D) None of the above
32. Let X be a continuous random variable with p.d.f. $f(x) = 1/(b-a)$, $a \leq x \leq b$
 $= 0$, elsewhere
 then mean is :
- (A) $(b-a)/2$
 (B) $(b+a)/2$
 (C) $(a-b)/2$
 (D) $(a-b)^2/2$
33. The standard deviation of a Leptokurtic distribution is 5, then which one is correct ?
- (A) $\mu_4 > 1875$
 (B) $\mu_4 = 1875$
 (C) $\mu_4 < 1875$
 (D) $\mu_4 = 625$
34. If x_1, x_2, \dots, x_n is a random sample drawn on X which takes the values 1 and 0 with respective probabilities θ and $(1-\theta)$, an unbiased estimate of θ^2 is :
- (A) $\frac{1}{n} \sum x_i^2$
 (B) $\frac{[\sum x_i (\sum x_i - 1)]}{n(n-1)}$
 (C) $\frac{1}{n-1} \sum (x_i - \bar{x})^2$
 (D) $\frac{1}{n} \sum (x_i - \bar{x})^2$
35. A random sample x_1, x_2, x_3, x_4, x_5 , of size 5 is drawn from a normal population with unknown mean μ , then the estimator $\frac{x_1 + x_2 + x_3}{2} + x_3$ is _____ estimate of μ .
- (A) an unbiased
 (B) a biased
 (C) neither biased nor unbiased
 (D) None of the above
36. For a Cauchy's distribution, the consistent estimator of population mean is :
- (A) Sample Median
 (B) Sample Mean
 (C) Sample Variance
 (D) Sample Correlation Coefficient
37. Let $-2, 2, 5, 9, -9, 7, -7$ be the observations drawn from a population having p.d.f. $f(x) = e^{-(x-\theta)}$; $\theta < x < \infty$; $-\infty < \theta < \infty$
 $= 0$; otherwise
 The sufficient Statistic for θ is :
- (A) 9
 (B) $-4/3$
 (C) -9
 (D) $4/3$
38. The maximum Likelihood estimators which are obtained by maximising the function of joint density function of random variables, are generally :
- (A) Unbiased and Inconsistent
 (B) Unbiased and Consistent
 (C) Consistent and invariant
 (D) Unbiased and Invariant

39. Let θ be an unknown parameter and T_1 be an unbiased estimator of θ ; $V(T_1) \leq V(T_2)$, for T_2 be any other unbiased estimator of θ , then T_1 is known as :
- Minimum variance unbiased estimator
 - Unbiased and efficient estimator
 - Consistent and efficient estimator
 - Unbiased and consistent estimator
40. If t_n is a consistent estimator of θ , another consistent estimator is :
- $t_n - \frac{1}{n}$
 - $t_n - n$
 - $n t_n$
 - $t_n + n$
41. The method of moments for estimating the parameters was discovered by :
- R.A. Fisher
 - Laplace
 - W.G. Gosset
 - Karl Pearson
42. Rao-Blackwell theorem enables us to obtain minimum variance unbiased estimator through :
- Unbiased estimators
 - Complete Statistics
 - Efficient Statistics
 - Sufficient Statistics
43. Power of a test is related to :
- type - I error
 - type - II error
 - type - I and type - II errors, both
 - None of the above
44. Neyman-Pearson Lemma provides :
- an unbiased test
 - a most power test
 - an admissible test
 - a minimax test
45. For testing randomness of a given series of observations, which of the following test is used ?
- Sign test
 - Run test
 - Chi-Square test
 - None of the above
46. The decision about H_0 , SPRT involves :
- One region only
 - Two regions only
 - Three regions
 - Four regions
47. Which of the following test is analogous to χ^2 -test of goodness of fit in the Non-Parametric tests ?
- Mann-Whitney test
 - Kolmogorov-Smirnov test
 - Wilcoxon Signed Rank test
 - None of the above
48. Wald-Wolfowitz Run Test for two samples is affected when the ties occur :
- within samples
 - between samples
 - either within or between samples
 - All the above
49. Let P be the probability that a coin will fall head in a single toss in order to test $H_0 : P = \frac{1}{2}$ against $H_1 : P = \frac{3}{4}$. The coin is tossed 5 times and H_0 is rejected if more than 3 heads are obtained. The power of the test is :
- $\frac{47}{128}$
 - $\frac{94}{128}$
 - $\frac{81}{128}$
 - 1
50. The Non-Parametric test which is an alternative of t-test is :
- Run test
 - Sign test
 - Mann - Whitney - Wilcoxon - U test
 - None of these

51. The distance between two populations can be measured by :
- Mahalanobis D^2
 - Wishart Distribution
 - Analysis of Covariance
 - Multivariate Normal Distribution
52. Hotelling T^2 has the following distribution :
- Binomial distribution
 - Normal distribution
 - Chi-square distribution
 - F-distribution
53. The correlation between only two variates eliminating the linear effect of other variates in them is known as :
- Multiple Correlation
 - Partial Correlation
 - Simple Correlation
 - None of these
54. Following correlation coefficients are obtained between the variables X_1 and X_2 ; X_1 and X_3 ; X_2 and X_3 and $r_{12} = 0.77$, $r_{13} = 0.72$; $r_{23} = 0.52$, respectively, then partial correlation coefficient $r_{12.3}$ is :
- 0.62
 - 0.82
 - 0.92
 - None of these
55. The multiple correlation coefficient $R_{1.23, \dots, n}$ lies :
- $-1 \leq R_{1.23, \dots, n} \leq 1$
 - $-1 \leq R_{1.23, \dots, n} \leq 0$
 - $-\infty \leq R_{1.23, \dots, n} \leq \infty$
 - $0 \leq R_{1.23, \dots, n} \leq 1$
56. In a Trivariate distribution $r_{12} = 0.7$, $r_{23} = r_{31} = 0.5$ then $R_{1.23}^2$ is :
- 0.82
 - 0.92
 - 0.52
 - 0.12
57. A Latin Square Design is applicable when the fertility variations are in :
- one direction
 - Two directions
 - Three directions
 - None of these
58. A 2×2 Latin Square Design is not used because :
- The degrees of freedom for rows is 1
 - The degrees of freedom for columns is 1
 - The degrees of freedom of treatments is 1
 - The degrees of freedom of error is zero
59. Local control is completely absent in :
- Completely Randomised Design
 - Randomised Block Design
 - Balanced Incomplete Block Design
 - Latin Square Design
60. In a 2^3 Factorial design, the treatments are replicated in 5 blocks, then the degrees of freedom of error sum of square is :
- 33
 - 39
 - 35
 - 28
61. In a RBD with ' v ' treatments and ' r ' blocks having one observation corresponding to a treatment in a particular block is missing, the degrees of freedom of error sum of square is :
- $(v-1)(r-1)$
 - $vr-1$
 - $r(v-1)-v$
 - $v(r-1)-1$
62. If the degrees of freedom of sum of squares due to error in a Latin Square Design is 6, the number of rows is :
- 4
 - 6
 - 8
 - 10

63. An analysis of variance technique is used to compare the means of five populations. So, five samples were taken from these five populations each comprising 20 observations. The degrees of freedom associated with F is :
- (A) 5,95
(B) 5,99
(C) 4,99
(D) 4,95
64. Which of the following is contrast ?
- (A) $3T_1 + T_2 - 3T_3 + T_4$
(B) $T_1 + 3T_2 - 3T_3 + T_4$
(C) $-3T_1 - T_2 + T_3 + 3T_4$
(D) $T_1 + T_2 + T_3 - T_4$
65. If k effects are confounded in a 2^n factorial experiment to have 2^k blocks of size 2^{n-k} units, the number of automatically confounded effects are :
- (A) $2^k - k$
(B) $k^2 - k - 1$
(C) $2^k - k - 1$
(D) None of these
66. In a Balanced Incomplete Block design, which is true :
- (A) $v > k$
(B) $v > b$
(C) $k < v$
(D) (A) and (B) both
- Where v no. of treatments, b no. of blocks and k is block size.
67. Sampling fluctuations may be describes as :
- (A) the variation in the values of observations
(B) the variation in the values of sample
(C) the variation in the values of statistic
(D) (A) and (C) both
68. A measure of precision obtained by sampling is given by its :
- (A) standard error
(B) sampling fluctuations
(C) sampling distribution
(D) (A) and (B) both
69. According to Neyman's allocation, in stratified sampling :
- (A) Sample size to be drawn from a strata is proportional to the variance of the strata
(B) Sample size proportional to the strata size
(C) Sample size proportional to the sample variance
(D) (A) and (C) both
70. If the variance of sample mean in SRSWOR and SRSWR are V and V' respectively. Then for $e = \frac{V}{V'}$ which statement is true ?
- (A) $e < 1$
(B) $e > 1$
(C) $e = 0$
(D) $e < 1$ only when N is quite large
71. Cluster sampling with equal clusters of size M, is expected to be more efficient than SRSWOR if the interclass coefficient p :
- (A) p is negative
(B) p is positive
(C) p is negative and less than $\frac{1}{M-1}$
(D) p is +ive and greater than $\frac{1}{M-1}$
72. The mean per unit estimator based on two stage sample will be :
- (A) always more efficient than corresponding uni-stage estimator
(B) less efficient than corresponding uni-stage estimator
(C) equally efficient than corresponding uni-stage estimator
(D) depends upon uni-stage sample size

73. The conditions under which ratio estimator is optimum is :

- (i) regression of Y on X should be linear
- (ii) regression of Y on X should be curvilinear
- (iii) regression line of Y on X should pass beneath origin
- (iv) the error variance given X should be constant

Choose the answer from the following :

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

74. If X and Y follows a bivariate normal distribution then the regression estimator

$$\frac{n}{\bar{Y}_{lr}} = \bar{y}_n + b_{yx}(\bar{x} - \bar{X}) \text{ is :}$$

- (A) biased estimator of \bar{Y}
- (B) unbiased estimator of \bar{Y}
- (C) unbiased estimator of \bar{Y} to $O\left(\frac{1}{n}\right)$
- (D) biased estimator of \bar{Y} to $O\left(\frac{1}{n}\right)$

75. For a finite population $Y = a + bX$, such that there is a perfect correlation between Y and X ; PPS sampling will be less precise than equal probability sampling if :

(A) $\frac{\bar{X} - \tilde{X}}{\tilde{X}\sigma_x} < \frac{b^2}{a^2}$

(B) $\frac{\bar{X} - \tilde{X}}{\tilde{X}\sigma_x} > \frac{b^2}{a^2}$

(C) $\frac{\tilde{X}\sigma_x}{\bar{X} - \tilde{X}} > \frac{b^2}{a^2}$

(D) $\frac{\tilde{X}\sigma_x}{\bar{X} - \tilde{X}} < \frac{b^2}{a^2}$

Where \tilde{X} is harmonic mean of the population.

76. The long term movements in a time series are called :

- (A) random variation
- (B) cyclic variation
- (C) seasonal variation
- (D) trend

77. In case of multiplicative model of time series, the sum of seasonal indices is :

- (A) 100 times the number of season
- (B) zero
- (C) 100

(D) $\frac{\sum(\theta_i - e_i)^2}{e_i}$

78. Cyclic variations in a time series are caused by :

- (A) floods
- (B) strikes
- (C) earthquakes
- (D) none of the above

79. What type of average is the index number ?

- (A) average of ratios
- (B) arithmetic average
- (C) median
- (D) (B) and (C) both

80. Which prices are taken into account while constructing consumer price index numbers ?

- (A) retail price
- (B) whole sale price
- (C) cost of production
- (D) any of the above

81. Which cannot be studied with the help of chain base method ?

- (A) short term changes
- (B) long term changes
- (C) comparison of change every year
- (D) (B) and (C) both

82. The National Income Estimation is the responsibility of :

- (A) National Income Committee
- (B) N.S.S.O.
- (C) C.S.O.
- (D) Finance Ministry

83. A closed economy is where :
- $GNP > GDP$
 - $GNP < GDP$
 - $GNP = GDP$
 - $GNP = GDP - \text{imports} + \text{exports}$
84. The faults due to assignable causes :
- can be removed
 - Cannot be removed
 - can sometimes be removed
 - can never be removed
85. The relation between expected value of R and standard deviation σ , with usual notation is :
- $E(R) = d_1\sigma$
 - $E(R) = d_2\sigma$
 - $E(R) = D_1\sigma$
 - $E(R) = D_2\sigma$
86. Daily 25 machines are tested in a factory. The number of defects are 8, 10, 11, 15, 37, 12, 13, 12, 9, 21, 23, 34, 11, 10, 14. The process is
- in control
 - out of control
 - incomplete information
 - can't say any thing
87. A manufacturer finds that on an average 1 in 10 of the items produced by him is defective. A few days later he finds 20 items in a sample of 100 items defective. The process is :
- under control
 - out of control
 - incomplete information
 - can't say any thing
88. Type-B O.C. curve always lies _____ type-A O.C. curve, if plotted on same graph :
- above
 - below
 - coincide
 - either (B) or (C)
89. The sampling inspection plan resulting into the lowest A.S.N curve is _____.
- best
 - worst
 - good
 - bad
90. For single sampling plan (100,20,1) the probability of acceptance of the lot for fraction defective 0 and 0.01 are :
- 0.98, 0.97
 - 0.99, 0.98
 - 1, 0.99
 - 1, 1
91. With usual notation A.O.Q.L is given by the formula :
- $\frac{p(N-n)Pa}{N}$
 - $\frac{p(N-n)Pa}{n}$
 - $\frac{(N-n) Pa}{N p}$
 - $\frac{(N-n) p}{n Pa}$

92. Having known that the last census population P_0 and growth rate r , the population after n years based on compound interest formula will be :

- (A) $P_0(1+n)^r$
- (B) $P_0/(1+r)^n$
- (C) $P_0/(1+n)^r$
- (D) $P_0(1+r)^n$

93. Crude death rate gives _____ weightage to the deaths of persons of all ages :

- (A) unequal
- (B) equal
- (C) more weightages of lower age
- (D) (A) and (C) both

94. A population of constant size having the same sex composition over time is called _____ population.

- (A) closed
- (B) constant
- (C) stationary
- (D) stable

95. Read the following statements :

- (i) Birth rate is the number of live births per lakh persons in a year
- (ii) In India sex ratio is defined as number of females per 1000 males in the population

Which of the above statement is correct ?

- (A) only (i)
- (B) only (ii)
- (C) both (i) and (ii)
- (D) neither (i) nor (ii)

96. The total births and female population in child bearing age at a place in a year are 3,000 and 50,000 respectively. The general fertility rate is :

- (A) $\frac{1}{60}$
- (B) 60
- (C) 600
- (D) 6000

97. N.R.R. = 1 leads one to conclude that

- (i) female population will exactly replace itself
- (ii) population remain constant
- (iii) there is no mortality in female births till their child bearing age

Which of the state is true ?

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

Study the following life table and answer Q.No. 98 to Q.No. 100 based on it, with usual notations.

Age of Years	l_x	dx	p_x	q_x	L_x	T_x	e_x^0
7	90,000	500	?	?	?	48,50,000	?
8	?	400	?	?	?	?	?

98. The value of p_7 on q_8 are :

- (A) 0.9942, 0.9943
- (B) 0.9944, 0.9945
- (C) 0.9943, 0.9955
- (D) 0.9955, 0.9957

99. The value of L_7 and L_8 are :

- (A) 89457, 89305
- (B) 89550, 89150
- (C) 89650, 88998
- (D) 89750, 89300

100. The value of T_8 and e_8^0 are :

- (A) 4760250, 521.8
- (B) 4760250, 531.8
- (C) 4770250, 531.8
- (D) 4770250, 521.8

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