

Code No.

V – 2346

**Entrance Examination for Admission to the P.G. Courses in the
Teaching Departments, 2025**

CSS

DEMOGRAPHY AND BIostatISTICS

For office use only

General Instructions

1. The Question Paper is having 100 Objective Questions, each carrying one mark.
2. The answers are to be (✓) 'tick marked' **only** in the "**Response Sheet**" provided.
3. **Negative marking : 0.25 marks** will be deducted for each wrong answer .

Time : 2 Hours

Max. Marks : 100

To be filled in by the Candidate

Register Number	in Figures								
	in words								

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Choose appropriate answer from the options in the questions.

(100 × 1 = 100 marks)

1. If A and B are symmetric matrices of the same order, then $AB - BA$ is a:
 - A. Symmetric matrix
 - B. Zero matrix
 - C. Skew symmetric matrix
 - D. Identity matrix

DO NOT WRITE HERE

-
2. If A is a square matrix of order 4 and $|A| = 4$, then $|2A|$ will be:
A. 8 B. 64 C. 16 D. 4
3. If $[12x + 10y; 78x + 5y] = [0; 32]$, then the value of $5x + 3y$ is equal to:
A. -1 B. 8
C. 2 D. 0
4. In a 700 m race, Amit reaches the finish point in 20 seconds and Rahul reaches in 25 seconds. Amit beats Rahul by a distance of:
A. 120 m B. 150 m
C. 140 m D. 100 m

5. If a function $f(x) = x^2 + bx + 1$ is increasing in the interval $[1, 2]$, then the least value of b is:
 A. 5 B. 0 C. -2 D. -4
6. if $\sin y = x \sin(a + y)$ then dx/dy is:
 A. $\sin(a + y)/\sin y$ B. $\sin(a + y)/\sin^2 y$
 C. $\sin y/\sin(a + y)$ D. $\sin^2 y/\sin(a + y)$
7. If \vec{a} , \vec{b} and \vec{c} are three vectors such that $\vec{a} + \vec{b} + \vec{c} = \vec{0}$, where \vec{a} and \vec{b} are unit vectors and $|\vec{c}| = 2$, then the angle between the vectors \vec{b} and \vec{c} is:
 A. 60° B. 90° C. 120° D. 180°
8. Which of the following cannot be the direction ratios of the straight line $x - 3/2 = 2 - y/3 = z + 4/-1$?
 A. 2, -3, -1 B. -2, 3, 1
 C. 2, 3, 1 D. 6, -9, -3
9. If A , B , and C are three singular matrices given by $A = [3b, 5; a, 2]$, $B = [1, 4; 3, 2]$ and $C = [a + b + c, c + 1; a + c, c]$, then the value of abc is:
 A. 15 B. 30 C. 45 D. 90
10. A random variable X has the following probability distribution;
 $X = -2, -1, 0, 1, 2$
 $P(X) = 0.2, 0.1, 0.3, 0.2, 0.2$ The variance of X will be:
 A. 0.1 B. 1.42 C. 1.89 D. 2.54
11. If a , b , c are three vectors such that $a + b + c = 0$ where a and b are unit vectors and $|c| = 2$, then the angle between the vectors b and c is
 A. 60° B. 90° C. 120° D. 180°

12. $\frac{5}{8} * 2\frac{3}{5} \div \frac{4}{9} = \underline{\hspace{2cm}}$.
- A. $2\frac{13}{27}$ B. $1\frac{11}{27}$ C. $2\frac{23}{32}$ D. $3\frac{21}{32}$
13. IF A and B are subsets of a set X , then what is $\{A \cap (X - B)\} \cup B$
- A. $A \cup B$ B. $A \cap B$ C. A D. B
14. The number of words that can be formed by permuting the letters of "MATHEMATICS" is
- A. 4988000 B. 4989600
C. 4989400 D. 4989450
15. The area of a rectangle is equal to the area of a circle with circumference equal to 39.6 meters. What is the length of the rectangle if its breath is 4.5 m?
- A. 33.52m B. 31.77m C. 21.63m D. 27.72m
16. What should come in the place of the question marks in the following equation?
- $$x/24 = 96/x$$
- A. 12 B. 24 C. 36 D. 48
17. Pipe A can fill a tank in 20 minutes and Pipe 18 in 30 mins and Pipe C can empty the same in 40 mins. If all of them work together, find the time taken in fill the tank
- A. $15\frac{1}{7}$ minutes B. $12\frac{1}{7}$ minutes
C. $17\frac{1}{7}$ minutes D. $10\frac{1}{7}$ minutes
18. How many gold coins are there in a jar of 88 coins, if there is $\frac{1}{3}$ as many silver coins as gold coins?
- A. 22 B. 33 C. 44 D. 66

25. The mean of a distribution is 14 and the standard deviation is 5. What is the value of the coefficient of variation?
- A. 60.4 B. 48.3 C. 35.7 D. 27.8
26. Which of the following describe the middle part of a group of numbers?
- A. Measure of variability B. Measure of central tendency
C. Measure of association D. Measure of shape
27. A parameter is a measure which is computed from
- A. Population data B. Sample data
C. Test statistics D. None of these
28. A chance variation to an observational process is
- A. Dispersion / Variability B. Measurement error
C. Random error D. Instrument error
29. In inferential statistics, we study
- A. the methods to make decisions about population based on sample results
B. how to make decisions about mean, median, or mode
C. how a sample is obtained from a population
D. None of the above
30. You asked five of your classmates about their height. On the basis of this information. you stated that the average height of all students in your university or college is 67 inches. This is an example of:
- A. Descriptive statistics B. Inferential Statistics
C. Parameter D. Population
31. Variance remains unchanged by change of
- A. Origin B. Scale
C. Both D. None of these

32. The variance of 5 numbers is 10. If each number is divided by 2, then the variance of new numbers is
 A. 20 B. 5 C. 2.5 D. 5.5
33. Mean Deviation. Variance and Standard Deviation of the values 4, 4, 4, 4, 4, 4 is
 A. 4 B. 8 C. 12 D. 0
34. Look at this series: 7, 10, 8, 11, 9, 12,... What number should come next?
 A. 7 B. 10 C. 12 D. 13
35. Look at this series: 36, 34, 30, 28, 24,... What number should come next?
 A. 20 B. 22 C. 23 D. 26
36. Social norms are:
 A. creative activities such as gardening, cookery and craftwork
 B. the symbolic representation of social groups in the mass media
 C. religious beliefs about how the world ought to be
 D. rules and expectations about interaction that regulate social life
37. Which one of the following will you categories as achieved status?
 A. Sex B. Age
 C. Marital status D. Caste
38. Caste status is an example of status.
 A. Ascribed B. Achieved
 C. General D. Social
39. The main reason for the economic backwardness of the simple tribal societies is _____.
 A. Poverty and ignorance
 B. Social traditions
 C. Primitive technology
 D. Kinship

40. Instrument used to measure earthquake is known as:
- A. Seismograph
 - B. Quake meter
 - C. Barometer
 - D. None of the above
41. How many kilometers are represented by 1 degree of latitude?
- A. 191 km B. 161 km C. 141 km D. 111 km
42. The approximate circumference of the earth is
- A. 13,000 km. B. 20,000 km
 - C. 25,000 km D. 40,075 km
43. Which one of the following elements is the most abundant in the earth's crust?
- A. Oxygen B. Sulphur
 - C. Silicon D. Carbon
44. Who is the father of Economics?
- A. Max Muller B. Adam Smith
 - C. Karl Max D. None of the above
45. Which one of the following bodies finalizes the five-year plan proposals?
- A. Planning commission
 - B. Union cabinet
 - C. National development council
 - D. Ministry of planning
46. Who is the Chairman of Planning Commission in India
- A. President B. Vice President
 - C. Prime Minister D. Finance Minister

47. Malthus theory of Population explored the relationship between
- A. Optimum growth and resources
 - B. Population growth and development
 - C. Food supply and technology
 - D. Food supply and population growth
48. Which one of the following is not a dimension of human development index?
- A. Social status
 - B. Knowledge
 - C. Life expectancy
 - D. Standard of living
49. Over population is equated
- A. In the first stage of the demographic cycle with high fertility rates
 - B. With high death rates
 - C. With imbalanced fertility rates and dependency ratios
 - D. With a continuing imbalances between numbers of people and carrying capacity
50. The continent with the highest birth rates is:
- A. Africa
 - B. Europe
 - C. North America
 - D. South America
51. Human mind is never _____ it advances or it _____
- A. Absolute-diminishes
 - B. Dynamic-stop
 - C. Stationary-retrogrades
 - D. Happy-decomposes
52. If I _____ you I _____ love to accept the offer
- A. Was....will
 - B. Was....would
 - C. Were....would
 - D. Were.....will
53. Select the synonym of Extradition
- A. Acceptance
 - B. Sentence
 - C. Extension
 - D. Deportation

62. The reserve Bank of India was established in
A. 1947 B. 1949 C. 1935 D. 1927
63. The first session of the Indian National Congress' was held at
A. Bombay B. Delhi
C. Calcutta D. Chennai
64. Which of the following rivers has its source outside the Indian Territory?
A. Jhelum B. Chenab
C. Beas D. Sutlej
65. FOX: CUNNING :: RABBIT:?.
A. Courageous B. Dangerous
C. Timid D. Ferocious
66. FLEXIBLE : RIGID :: CONFIDENCE?
A. Diffidence B. Indifference
C. Cowardice D. Scare
67. Find the odd one out
A. Flourish B. Renovate
C. Blossom D. Thrive
68. Find the odd one out
A. Ginger B. Garlic
C. Chilli D. Potato
69. Find the odd one out
A. December B. February
C. March D. July

70. Which one of the following gases is considered as atmospheric pollutant?
- A. Oxygen B. Ozone
C. Sulphur dioxide D. Nitrogen
71. Cup is to coffee as bowl is to
- A. Dish B. Soup
C. Spoon D. Food
72. Reptile is to lizard as flower is to
- A. Petal B. Stem
C. Daisy D. Alligator
73. Which of the following is not a measure of socio-economic status?
- A. Physical Quality of Life Index,
B. Human Development Index
C. Gender Empowerment Measure
D. Body Mass Index
74. An enumeration or counting of a population is referred to a
- A. Vital statistics B. Census
C. Fertility rate D. Growth rate
75. Records of births, deaths, marriages, and divorces, gathered through a registration system maintained by governmental units, are referred to as:
- A. Census B. Demography
C. Vital statistics D. None of the above
76. When did the National Population Policy came into effect?
- A. 1952 B. 2001 C. 2000 D. 1947

77. The average number of persons per unit area, such as square kilometer, is termed as which of the following?
- A. Population distribution
 - B. Population growth
 - C. Absolute population
 - D. Population density
78. Which is the most populous country of the world?
- A. Russia
 - B. United States
 - C. China
 - D. India
79. The scientific study of population is known as_____
- A. Population studies
 - B. Demography
 - C. Population sciences
 - D. Gerontology
80. NACO is an organization which deals with which of the following health concerns?
- A. HIV/AIDS
 - B. Kala Azar
 - C. Pneumonia
 - D. Typhoid
81. Which of the following services are not provided by the Anganwadi Centres?
- A. Immunisation and health check-ups
 - B. Treatment of minor illnesses and referral
 - C. Growth monitoring and supplementary feeding
 - D. Water and sanitation
82. Which state has the lowest sex ratio as per the Census of India 2011?
- A. Maharashtra
 - B. Rajasthan
 - C. Bihar
 - D. Haryana
83. Which of the following is not considered a major factor contributing to the decline in child sex ratio in India?
- A. Female infanticide
 - B. Sex selective abortion
 - C. dowry practices
 - D. Neglect of girl infants

90. A scatter diagram is _____
- A. A statistical test
 - B. Linear
 - C. Curvilinear
 - D. A graph showing x and y values
91. Which of the following is the highest range of r ?
- A. 0 and 1
 - B. -1 and 0
 - C. -1 and 1
 - D. None of these
92. Which of the following is most likely to be an inverse relationship?
- A. Between income and expenditure on education
 - B. Between price increase and demand for a certain product
 - C. Between average number of hours studied per day and the performance of the students in the examination
 - D. Between advertising expenditure and sales of a product
93. What is the arithmetic mean of the data set 4, 5, 0, 10.8 and 3?
- A. 5
 - B. 6
 - C. 7
 - D. 8
94. What does correlation measure?
- A. The causal relationship between two variables
 - B. The strength and direction of the association between two variables
 - C. The difference between two variables
 - D. The frequency of the occurrence of two variables
95. What is inferential statistics?
- A. The branch of statistics that deals with summarizing data
 - B. The branch of statistics that involves drawing conclusions about a population based on sampling data
 - C. The branch of statistics that deals with organizing data
 - D. The branch of statistics that involves collecting data

96. What is a probability distribution?
- A. A function that describes the likelihood of obtaining the possible values of a random variable
 - B. A graphical representation of frequencies of data
 - C. A method for testing hypotheses
 - D. A measure of central tendency
97. What is a non-parametric test in statistics?
- A. A test that assumes the data follow a specific distribution
 - B. A test used for small sample sizes
 - C. A test that does not assume a specific distribution for the data
 - D. A test that is only used for ordinal data
98. What is the central limit theorem?
- A. The theorem that the mean of a sample is always equal to the mean of the population
 - B. The theorem that the distribution of sample means approximates a normal distribution as the sample size becomes larger
 - C. The theorem that the variance of a population can be estimated using the sample variance
 - D. The theorem that all data follows a normal distribution
99. What is a categorical variable?
- A. A variable that can take on any value within a range
 - B. A variable that represents categories or groups
 - C. A variable that is always numerical
 - D. A variable that can only take two values
100. The heights of the bars of a histogram correspond to _____ values.
- A. Frequency
 - B. Alternative hypothesis
 - C. Null hypothesis
 - D. Direct hypothesis
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RESPONSE SHEET

1	A B C D E	26	A B C D E	51	A B C D E	76	A B C D E
2	A B C D E	27	A B C D E	52	A B C D E	77	A B C D E
3	A B C D E	28	A B C D E	53	A B C D E	78	A B C D E
4	A B C D E	29	A B C D E	54	A B C D E	79	A B C D E
5	A B C D E	30	A B C D E	55	A B C D E	80	A B C D E
6	A B C D E	31	A B C D E	56	A B C D E	81	A B C D E
7	A B C D E	32	A B C D E	57	A B C D E	82	A B C D E
8	A B C D E	33	A B C D E	58	A B C D E	83	A B C D E
9	A B C D E	34	A B C D E	59	A B C D E	84	A B C D E
10	A B C D E	35	A B C D E	60	A B C D E	85	A B C D E
11	A B C D E	36	A B C D E	61	A B C D E	86	A B C D E
12	A B C D E	37	A B C D E	62	A B C D E	87	A B C D E
13	A B C D E	38	A B C D E	63	A B C D E	88	A B C D E
14	A B C D E	39	A B C D E	64	A B C D E	89	A B C D E
15	A B C D E	40	A B C D E	65	A B C D E	90	A B C D E
16	A B C D E	41	A B C D E	66	A B C D E	91	A B C D E
17	A B C D E	42	A B C D E	67	A B C D E	92	A B C D E
18	A B C D E	43	A B C D E	68	A B C D E	93	A B C D E
19	A B C D E	44	A B C D E	69	A B C D E	94	A B C D E
20	A B C D E	45	A B C D E	70	A B C D E	95	A B C D E
21	A B C D E	46	A B C D E	71	A B C D E	96	A B C D E
22	A B C D E	47	A B C D E	72	A B C D E	97	A B C D E
23	A B C D E	48	A B C D E	73	A B C D E	98	A B C D E
24	A B C D E	49	A B C D E	74	A B C D E	99	A B C D E
25	A B C D E	50	A B C D E	75	A B C D E	100	A B C D E

ROUGH WORK

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