

Statistics MCQ Question Bank

Second Paper

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1 Introduction to Probability

1.1 Permutation-Combination

- Three objects can be placed in 2 positions in – ways.
(a) 3 (b) 4 (c) 6 (d) 8
- In how many ways can a team of 2 be formed from 4 people?
(a) 4 (b) 6 (c) 8 (d) 12
- ${}^n p_r =$
(a) $\frac{n!}{(n-r)!}$ (b) $\frac{n!}{(n+r)!}$ (c) $\frac{n!}{r!}$ (d) $\frac{n!}{(r-n)!}$
- ${}^n C_r =$
(a) $\frac{n!}{(n-1)!(n+r)!}$ (b) $\frac{r!}{n!(n-r)!}$ (c) $\frac{n!(n-1)!}{r!}$ (d) $\frac{n!}{(r-n)!}$

1.2 Conceptual Questions

- Which is the formula of classical approach of probability?
(a) $P = \frac{\text{No. of favorable outcomes}}{\text{Total no. of possible outcomes}}$ (b) $P = \frac{\text{No. of total outcomes}}{\text{No. of favorable outcomes}}$
(c) $P = \lim_{n(S) \rightarrow \infty} \frac{n(A)}{n(S)}$ (d) $P = \lim_{n(A) \rightarrow \infty} \frac{n(A)}{n(S)}$
- Which is the formula of empirical/relative frequency approach of probability?
(a) $P = \frac{\text{No. of favorable outcomes}}{\text{Total no. of possible outcomes}}$ (b) $P = \frac{\text{No. of total outcomes}}{\text{No. of favorable outcomes}}$
(c) $P = \lim_{n(S) \rightarrow \infty} \frac{n(A)}{n(S)}$ (d) $P = \lim_{n(A) \rightarrow \infty} \frac{n(A)}{n(S)}$
- What is the correct formula for conditional probability?
(a) $P(A|B) = \frac{P(A \cap B)}{P(B|A)}$ (b) $P(A|B) = \frac{P(A \cap B)}{P(A)}$ (c) $P(A|B) = \frac{P(A \cap B)}{P(B)}$ (d) $P(A|B) = \frac{P(B|A)}{P(B|A)}$
- The third axiom of probability is –
(a) $0 \leq P(A) \leq 1$ (b) $P(S) = 1$
(c) $P(A_1 U A_2 U \dots U A_n) = \sum_{i=1}^{\infty} P(A_i)$ (d) $P(A) = 1 - P(A)$
- 10 out of each 100 people in a city walk to the office. If one is picked randomly, what is the probability s/he does not walk to the office?
(a) 0.95 (b) 0.10 (c) 0.90 (d) 0.01
- A coin is thrown thrice. How many outcomes are generated?
(a) 3 (b) 4 (c) 8 (d) 9
- A die is thrown twice. This is called –
(a) An experiment (b) sample space (c) A random experiment (d) A trial
ment

12. Possible value of probability

- i. -1 ii. 0.5 iii. 0

Which one is correct?

- (a) i and ii (b) i and iii (c) ii and iii (d) i, ii and iii

13. An act repeated under some specific conditions is called –

- (a) Event (b) Experiment (c) Sample (d) Sample space

14. $P(0)$ implies –

- (a) A certain event (b) An uncertain event (c) An impossible event (d) A probable event

15. Events having some common elements are called –

- (a) Complementary events (b) Mutually exclusive events
(c) Exhaustive events (d) Non-Mutually exclusive events events

16. The minimum value of probability is

- (a) $-\alpha$ (b) 1 (c) 0 (d) -1

17. Each element of sample space is called–

- (a) Trial (b) Experiment (c) Variable (d) Sample Point

18. Two events not occurring together are called–

- (a) dependent Events (b) Independent Events
(c) Mutually Exclusive Events (d) Marginal Events

19. If A and B are independent, which formula is correct?

- (a) $P(A \cap B) = P(A) \cdot P(B)$ (b) $P(A \cap B) = P(\bar{A}) \cdot P(B)$
(c) $P(A \cap B) = P(A) \cdot P(\bar{B})$ (d) $P(A \cap \bar{B}) = P(A) \cdot P(B)$

Answer the next three questions based on the following information.

A card is drawn from of pack of playing cards.

20. What is the probability that the card is a King?

- (a) 0.0192 (b) 0.25 (c) 0.5 (d) 0.0769

21. P(The card is not from Diamonds)–

- (a) $\frac{1}{2}$ (b) 0 (c) $\frac{3}{4}$ (d) $\frac{1}{4}$

22. P(The card is red or Clubs)

- (a) $\frac{1}{4}$ (b) $\frac{1}{2}$ (c) $\frac{2}{3}$ (d) $\frac{3}{4}$

23. If a neutral die is thrown, the probability of having a digit greater than 6 is

- (a) $\frac{1}{6}$ (b) $\frac{0}{6}$ (c) $\frac{2}{3}$ (d) $\frac{3}{6}$

24. Tossing a coin twice generates how many outcomes?

- (a) 4 (b) 16 (c) 8 (d) 2

25. The probability of two disjoint sets happening together is:

- (a) 0.5 (b) 0 (c) 1 (d) $0 \leq x < 1$

Answer the next three questions using the following information

$$P(A) = \frac{1}{3}, P(B) = \frac{1}{2} \& P(A \cup B) = \frac{7}{12}$$

26. $P(A \cap B) = ?$
 (a) $\frac{5}{12}$ (b) $\frac{1}{2}$ (c) $\frac{1}{4}$ (d) $\frac{15}{16}$
27. $P(A \cap \bar{B}) = ?$
 (a) $\frac{1}{4}$ (b) $\frac{3}{4}$ (c) $\frac{5}{6}$ (d) $\frac{1}{12}$
28. **What is the probability that B occurs or A does not occur?**
 (a) $\frac{3}{4}$ (b) $\frac{7}{12}$ (c) $\frac{5}{12}$ (d) $\frac{11}{12}$
29. **An un contains 10 red and 5 black balls. Two balls are drawn; what is the probability of getting two red balls?**
 (a) $\frac{3}{7}$ (b) $\frac{4}{7}$ (c) $\frac{20}{21}$ (d) $\frac{2}{21}$

2 Random Variables

2.1 Concept of Random Variable

30. **A set of sample points tabulated along with their respective probabilities is an example of**
 —
 (a) Probability distribution (b) Probability function
 (c) Frequency distribution (d) Marginal probability distribution
31. **How many conditions does a probability density function have?**
 (a) 2 (b) 3 (c) 4 (d) 5
32. **A coin is tossed twice and no. of heads appeared is denoted by X. How many possible values of X are there?**
 (a) 1 (b) 2 (c) 0 (d) 3

Answer the next two questions based on the following information

X	0	1	2
$\frac{P(x)}{}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$

33. **What is F(1)**
 (a) 0.65 (b) 0.75 (c) 0.5 (d) 1
34. $P(X \leq 1 \leq 3) = -$
 (a) 0.75 (b) 0.70 (c) 0.95 (d) 1
35. **Which one is a property of marginal probability density function?**
 (a) $\int_x f(x^2) dx = 1$ (b) $\int_x f(x^2) dx = 0.5$ (c) $\int_x f(x) dx = 1$ (d) $P(x \geq 1)$
36. **Which one is NOT an example of a continuous random variable —**
 (a) Weight (b) Height (c) Time (d) Size of television
37. **Integrated value of $\frac{1}{4}x^4 -$**
 (a) $\frac{1}{20}x^5$ (b) $\frac{1}{20}x^5 + c$ (c) $\frac{1}{5}x^4$ (d) $\frac{5}{4}x^5$

38. The conditions of a probability distribution are—

- i. $\sum P(X) = 1$
- ii. $\sum P(X) = 0$
- iii. $0 \leq P(X) \leq 1$

Which one is correct?

- (a) i and ii
 - (b) i and iii
 - (c) ii and iii
 - (d) i, ii and iii
39. What is $F(\infty)$ for a distribution function $F(x)$?
- (a) $-\infty$
 - (b) -1
 - (c) 0
 - (d) 1
40. What is $F(-\infty)$ for a distribution function $F(x)$?
- (a) $-\infty$
 - (b) -1
 - (c) 0
 - (d) 1
41. How many types of random variables are there?
- (a) 2
 - (b) 3
 - (c) 4
 - (d) 5
42. Which of the following is not a discrete random variable?
- (a) number of students
 - (b) Weight
 - (c) Number of heads in coin toss
 - (d) Population
43. Which one is a property of a probability distribution?
- (a) $P(x_i) = 0$
 - (b) $P(x_i \neq 1)$
 - (c) $\sum P(x_i) = 1$
 - (d) $\int_x P(X)dx \leq 1$
44. Which one is not a discrete random variable?
- (a) Number of students
 - (b) Weight
 - (c) Number of heads in five coin tosses
 - (d) Released version number of a software
45. Which one is a property of joint probability distribution?
- (a) $P(X_i, Y_j) < 1$
 - (b) $P(X_i, Y_j) = 0$
 - (c) $P(X_i, Y_j) < 0$
 - (d) $0 \leq P(X_i, Y_j) \leq 1$

2.2 Misc

Answer the next two questions using the following information

x	1	2	3	4	5	6
P(x)	k	2k	3k	4k	5k	6k

46. What is the value of k?
- (a) $\frac{7}{21}$
 - (b) $\frac{5}{21}$
 - (c) $\frac{1}{21}$
 - (d) 1
47. What is the type of variable X?
- (a) Discrete
 - (b) Discrete random
 - (c) Continuous
 - (d) Continuous random

Answer the next THREE questions using the following information

$$P(x) = \frac{x+1}{k}; x = 1, 2, 3, 4$$

48. What is the value of k?
- (a) 10
 - (b) 11
 - (c) 14
 - (d) 15

49. $F(2) = -$
 (a) $\frac{2}{14}$ (b) $\frac{3}{11}$ (c) $\frac{5}{14}$ (d) $\frac{5}{11}$
50. $P(x)$ is a –
 (a) Joint probability distribution (b) Cumulative probability distribution
 (c) Probability mass function (d) Probability Density function

51. The example of a discrete random variable is–
 i. Binomial variate
 ii. Poisson variate
 iii. Normal variate

Which one is correct?

- (a) i and ii (b) i and iii (c) ii and iii (d) i, ii and iii
52. $f(x) = 2x; 0 < X < 3$; What is $F(3)$?
 (a) 3 (b) 0 (c) 1 (d) 0

Answer the next two questions based on the following information:

$$P(x, y) = \frac{1}{21}(x + y); x = 1, 2, 3 \text{ and } y = 1, 2$$

53. $P(x) = ?$
 (a) $P(x) = \frac{2x+3}{21}$ (b) $P(x) = \frac{x+3}{27}$ (c) $P(x) = \frac{4x+3}{21}$ (d) $P(x) = \frac{2x+5}{21}$
54. $P(y) = ?$
 (a) $\frac{y+2}{7}$ (b) $\frac{y+3}{7}$ (c) $\frac{3y+2}{7}$ (d) $\frac{y+2}{9}$
55. If $f(x) = kx^3; -1 \leq x \leq 1$, then k is
 i) positive
 ii) negative
 iii) lies from -1 to 1
 (a) i (b) ii (c) iii (d) i and ii

Answer the next two questions based on the following information.

x	4	5	6	3	2	1
P(X)	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$

56. The value of $P(3 < X < 5)$ is:
 (a) $\frac{1}{2}$ (b) $\frac{1}{6}$ (c) $\frac{1}{3}$ (d) 0
57. $P(x \neq 2)$ is :
 (a) $\frac{5}{6}$ (b) 0
 (c) 1 (d) Can't be found from this information

3 Mathematical Expectation

Answer the next **THREE** questions based on the following information

X	0	1	2
$P(x)$	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{5}{12}$

58. What is the value of $E(X)$
- (a) $\frac{15}{12}$ (b) $\frac{13}{12}$ (c) $\frac{1}{12}$ (d) $\frac{11}{13}$
59. What is the value of $E(X^2)$
- (a) $\frac{25}{12}$ (b) $\frac{13}{12}$ (c) $\frac{23}{12}$ (d) $\frac{25}{13}$
60. What is $V(2X)$?
- (a) 2.93 (b) 2.91 (c) 1.97 (d) 2.97
61. Question
- (a) Choice (b) Choice (c) Choice (d) Choice
62. What is the expected value of of the squared deviation of the value of the random variable from their mean?
- (a) Arithmetic Mean (b) Expectation (c) Variance (d) Co-variance
63. What is the minimum value of variance a random variable?
- (a) $-\infty$ (b) 1 (c) 0 (d) -1
64. If $y = ax + b$, what is the value of $V(y)$?
- (a) $aV(X)$ (b) $a^2V(X)$ (c) $V(X)$ (d) a^2
65. If $y = ax + b$, what is the value of $E(y)$?
- (a) $aE(X) + b$ (b) $a^2E(X)$ (c) $E(X)$ (d) b
66. What is the value of $V(5)$?
- (a) 0 (b) 25 (c) 5 (d) 1
67. If $P(x) = \frac{1}{n}; x = 1, 2, 3, \dots, n$, what is the value of $E(X)$?
- (a) $\frac{n}{2}$ (b) $\frac{n-1}{2}$ (c) $\frac{n+1}{2}$ (d) $n + 1$
68. If $P(x) = \frac{4-|5-x|}{k}; x = 2, 3, 4, \dots, 8$, what is the value of k ?
- (a) 5 (b) 8 (c) 16 (d) 24
69. Expected value of a constant a is –
- (a) 1 (b) Variance (c) a (d) $a+1$
70. The variance of a constant m is –
- (a) 0 (b) 1 (c) m (d) m^2
71. What is $V(X - Y)$ equal to?
- (a) $V(X) + V(Y)$ (b) $V(X) + V(Y) - 2Cov(X, Y)$
(c) $V(X) - V(Y)$ (d) $V(X) + V(Y) + 2Cov(X, Y)$

72. What is the value of $V(2X+5)$?
 (a) $4V(X) - 5$ (b) 20 (c) $4V(X)$ (d) 0
73. If $P(x) = \frac{1}{20}; x = 1, 2, 3, \dots, 20$, what is the standard deviation?
 (a) 1 (b) 5.77 (c) 7.75 (d) 12.57
74. Expectation measures –
 (a) Dispersion (b) Skewness (c) Kurtosis (d) Central tendency
75. If $E(X) = -0.5$, then $E(1 - 2X) = ?$
 (a) 0 (b) -1 (c) 2 (d) 1
76. If $P(X) = \frac{1}{10}; x = 1, 2, \dots, 10$, then $E(X) = ?$
 (a) 10 (b) 5.5 (c) 0 (d) 11
77. Which formula of variance is correct?
 (a) $V(X + Y) = V(X) + V(Y) - 2Cov(X, Y)$ (b) $V(X + Y) = V(X) + V(Y) + 2Cov(X, Y)$
 (c) $V(X + Y) = V(X) + V(Y) - 2Cov(X, Y)$ (d) $V(X + Y) = V(X) - V(Y) + 2Cov(X, Y)$
78. X is a constant; what is the value of $V(\frac{X}{2})$?
 i) 0
 ii) $\frac{1}{2}$
 iii) $\frac{1}{4}$
 (a) ii (b) i (c) iii (d) i and iii
79. If $E(X) = 2, E(X^2) = 8, V(X) = --$
 (a) 0 (b) 2 (c) 4 (d) 8
80. If $P(x) = \frac{4-|5-x|}{k}; x = 2, 3, 4, \dots, 8$, what is the value of $E(X)$?
 (a) 3 (b) 8 (c) 16 (d) 5
81. If $P(x) = \frac{6-|7-x|}{k}; x = 2, 3, 4, \dots, 12$, what is the value of $E(X)$?
 (a) 6 (b) 9 (c) 13 (d) 36
82. If $P(x) = \frac{3-|4-x|}{k}; x = 2, 3, 4, \dots, 6$, what is the value of k?
 (a) 6 (b) 9 (c) 10 (d) 40
83. If the variance of X is 3, what is the variance of $V(3)$?
 (a) 1 (b) 2 (c) 3 (d) 0
84. If $V(X) = 5$, what is $V(X + 5)$?
 (a) 0 (b) 5 (c) 10 (d) 25
85. If $V(X) = 5$, what is $V(2X + 5)$?
 (a) 20 (b) 5 (c) 10 (d) 25

4 Binomial Distribution

86. How many parameters are there in a binomial distribution?
(a) 1 (b) 2 (c) 3 (d) 4
87. What is the Mean of Binomial Distribution?
(a) np (b) npq (c) nq (d) \sqrt{npq}
88. What is the Variance of Binomial Distribution?
(a) np (b) npq (c) nq (d) \sqrt{npq}
89. What is the Standard Deviation of Binomial Distribution?
(a) np (b) npq (c) nq (d) \sqrt{npq}
90. What is the Coefficient of Variation of Binomial Distribution?
(a) np (b) npq (c) $\frac{q}{np}$ (d) \sqrt{npq}
91. Which is true of mean (np) of Binomial Distribution?
(a) $np = 0$ (b) $np < 0$ (c) $np > 0$ (d) $np \neq 0$
92. In a Binomial distribution, how are mean and variance related?
(a) *Mean* > *Variance* (b) *Mean* < *Variance*
(c) *Mean* = *Variance* (d) *Mean* = $2 \times$ *Variance*
93. When does Binomial distribution tend to Poisson distribution?
(a) $n \rightarrow \infty$ and $p \rightarrow \infty$ (b) $n \rightarrow 0$ and $p \rightarrow 0$ (c) $n \rightarrow \infty$ and $p \rightarrow 0$ (d) $n \rightarrow 0$ and $p \rightarrow \infty$
- Answer the next two questions based on the following information.**
X is a binomial variate with expectation 4 and standard deviation $\sqrt{3}$.
94. What are the values of the parameters (mean and probability)?
(a) $16, \frac{1}{4}$ (b) $16, \frac{3}{4}$ (c) $15, \frac{1}{4}$ (d) $10, \frac{1}{4}$
95. What is $P(X \neq 0)$?
(a) 0 (b) 0.01 (c) 0.99 (d) 1

5 Poisson Distribution

96. What is the mean of Poisson distribution
(a) $\frac{1}{\sqrt{m}}$ (b) m (c) $\frac{1}{m}$ (d) $1 + \frac{1}{m}$
97. Which relationship between mean and variance of Poisson Distribution is correct?
(a) *Mean* > *Variance* (b) *Mean* < *Variance* (c) *Mean* = *Variance* (d) *Mean* \neq *Variance*
98. What is the Variance of Poisson Distribution(with parameter m)?
(a) $\frac{1}{\sqrt{m}}$ (b) $\frac{1}{m}$ (c) m (d) $\frac{1}{m+1}$
99. What is the Standard Deviation of Poisson Distribution(with parameter m)?
(a) $\frac{1}{\sqrt{m}}$ (b) $\frac{1}{m}$ (c) \sqrt{m} (d) $\frac{1}{m+1}$
100. Which one is true of the parameter (m) of Poisson Distribution?
(a) $m = 0$ (b) $m < 0$ (c) $m > 0$ (d) $m = 1$

101. The parameter of a Poisson Distribution is 5. What is its mean?
 (a) 2 (b) 5 (c) 2.24 (d) 25
102. When does Binomial Distribution tend to Poisson Distribution?
 (a) $n \rightarrow \infty, p \rightarrow 0$ & np is finite (b) $n \rightarrow \infty, p \rightarrow 0$ & np is infinite
 (c) $n \rightarrow \infty, p \rightarrow 0$ & np is finite (d) $n \rightarrow 0, p \rightarrow \infty$ & np is infinite
103. The parameter of a Poisson variate is 2. What is its variance?
 (a) 0 (b) 4 (c) $\sqrt{2}$ (d) 2
104. X is a Poisson variate. $P(2) = P(4)$. What is the value of the parameter?
 (a) 12 (b) 3.46 (c) 3.6 (d) 4
105. Mean of a Poisson variate is a. What is its standard deviation?
 (a) 0 (b) a (c) $a^{\frac{1}{2}}$ (d) a^2

6 Vital Statistics

106. What is the called the ratio of the dependent population to the earning population?
 (a) Dependency ratio (b) Sex ration (c) Population density (d) Growth rate
107. What is the formula of population density?
 (a) $\frac{M}{F} \times 100$ (b) $\frac{F}{M} \times 100$ (c) $\frac{B}{P} \times 100$ (d) $\frac{P}{A}$
108. In the following data, what is the dependency ratio?

Age	0-14	15-24	25-34	35-44	45-54	55-64	65+
Populataion	31,500	40,000	48,000	41,000	32,000	25,000	16,000

- (a) 35.54% (b) 25.54% (c) 23.24% (d) 31.25%
109. Crude Birth Rate (CBR) is:
 (a) $\frac{B}{P} \times 100$ (b) $\frac{B}{P} \times 1000$ (c) $\frac{P}{B} \times 100$ (d) $\frac{F}{P} \times 100$
110. Which one is a measure of reproduction?
 i) CBR
 ii) CDR
 iii) NRR
 (a) i (b) ii (c) iii (d) i and ii
111. The number of people living per unit area is called—
 (a) Population Index (b) Population Density
 (c) Human Development Index (d) Dependency Ratio
112. Which formula of GFR is accurate?
 (a) $GFR = \frac{B}{P} \times 1000$ (b) $GFR = \frac{B}{F_{15-49}} \times 1000$
 (c) $GFR = \frac{B_i}{F_i} \times 1000$ (d) $GFR = \frac{G_i}{F_{15-49}} \times 1000$

Answer Key:

1. (c) 6
2. (b) 6
3. (a) $\frac{n!}{(n-r)!}$
4. (a) $\frac{n!}{(n-1)!(n+r)!}$
5. (a) $P = \frac{\text{No. of favorable outcomes}}{\text{Total no. of possible outcomes}}$
6. (a) $P = \frac{\text{No. of favorable outcomes}}{\text{Total no. of possible outcomes}}$
7. (a) $P(A|B) = \frac{P(A \cap B)}{P(B|A)}$
8. (c) $P(A_1 \cup A_2 \cup \dots \cup A_n) = \sum_{i=1}^{\infty} P(A_i)$
9. (c) 0.90
10. (c) 8
11. (a) An experiment
12. (c) ii and iii
13. (b) Experiment
14. (c) An impossible event
15. (a) Complementary events
16. (c) 0
17. (d) Sample Point
18. (c) Mutually Exclusive Events
19. (a) $P(A \cap B) = P(A) \cdot P(B)$
20. (d) 0.0769
21. (c) $\frac{3}{4}$
22. (d) $\frac{3}{4}$
23. (b) $\frac{0}{6}$
24. (a) 4
25. (b) 0
26. (c) $\frac{1}{4}$
27. (a) $\frac{1}{4}$
28. (d) $\frac{11}{12}$
29. (a) $\frac{3}{7}$
30. (a) Probability distribution
31. (b) 3
32. (d) 3
33. (b) 0.75
34. (a) 0.75
35. (c) $\int_x f(x) dx = 1$
36. (d) Size of television
37. (b) $\frac{1}{20}x^5 + c$
38. (b) i and iii
39. (d) 1
40. (c) 0
41. (a) 2
42. (b) Weight
43. (c) $\sum P(x_i) = 1$
44. (d) Released version number of a software
45. (d) $0 \leq P(X_i, Y_j) \leq 1$
46. (c) $\frac{1}{21}$
47. (b) Discrete random
48. (c) 14
49. (c) $\frac{5}{14}$
50. (c) Probability mass function
51. (a) i and ii
52. (c) 1
53. (a) $P(x) = \frac{2x+3}{21}$
54. (c) $\frac{3y+2}{7}$
55. (a) i
56. (b) $\frac{1}{6}$
57. (a) $\frac{5}{6}$
58. (b) $\frac{13}{12}$
59. (b) $\frac{13}{12}$
60. (d) 2.97
61. (a) Choice
62. (c) Variance
63. (c) 0
64. (b) $a^2V(X)$
65. (a) $aE(X) + b$
66. (a) 0
67. (c) $\frac{n+1}{2}$
68. (c) 16
69. (c) a
70. (a) 0
71. (c) $V(X) - V(Y)$

72. (c) $4V(X)$
73. (a) 1
74. (d) Central tendency
75. (c) 2
76. (b) 5.5
77. (b) $V(X + Y) = V(X) + V(Y) + 2Cov(X, Y)$
78. (b) i
79. (c) 4
80. (d) 5
81. (d) 36
82. (b) 9
83. (d) 0
84. (b) 5
85. (a) 20
86. (b) 2
87. (a) np
88. (b) npq
89. (d) \sqrt{npq}
90. (c) $\frac{q}{np}$
91. (a) $Cov(X, Y) = 0$
92. (a) *Mean > Variance*
93. (c) $n \rightarrow \infty$ and $p \rightarrow 0$
94. (a) $16, \frac{1}{4}$
95. (c) 0.99
96. (b) m
97. (c) *Mean = Variance*
98. (c) m
99. (c) \sqrt{m}
100. (c) $m > 0$
101. (b) 5
102. (a) $n \rightarrow \infty, p \rightarrow 0$ & np is finite
103. (d) 2
104. (b) 3.46
105. (c) $a^{\frac{1}{2}}$
106. (a) Dependency ratio
107. (d) $\frac{P}{A}$
108. (b) 25.54%
109. (b) $\frac{B}{P} \times 1000$
110. (c) iii
111. (b) Population Density
112. (b) $GFR = \frac{B}{F_{15-49}} \times 1000$