	Total No THIS QUESTION BOOKLET BEFORE T ARE ASKED TO DO SO)	o. of Printed Pages : 21
A	UG-EE-June, 2024 SUBJECT : Statistics (4 Yea	r) 10012
		Sr. No
Time : 11/4 Hours	Max. Marks : 100	Total Questions : 100
Roll No. (in figures)	(in words)	
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A

1. How many subsets can be formed from the following set :

- $\{1, 2, 3, \dots, n\}$
- (1) n
- (2) n^2
- (3) 2n
- $(4) 2^n$

2. If $A = \{1, 2, 3\}, B = \{3, 4\}, C = \{4, 5, 6\}$, then $A \cup (B \cap C)$ is :

- (1) {3}
- (2) {1, 2, 3, 4}
- (3) {1, 2, 3, 5}
- (4) {1, 2, 3, 4, 5, 6}

3. In rule method, the null set is represented by :

- $(1) \{ \}$
- (2) **\$**
- (3) $\{x : x = x\}$
- (4) $\{x : x \neq x\}$
- 4. Let U = {1, 2, 3,, 10}, A = {1, 2, 5}, B = {6, 7}, then A \cap B' is (Where A' & B' represent compliment of A and B respectively) :
 - (1) A
 - (2) B'
 - (3) A'
 - (4) B
- 5. In a group of 70 people, 37 like coffee, 52 like tea and each person likes at least one of the two drives. How many like both coffee and tea?
 - (1) 17
 - (2) 18
 - (3) 19
 - (4) 20

6. The inequality $\frac{2}{x} < 3$ is true, when x belongs to :

(1) $\left[\frac{2}{3},\infty\right)$ (3) $\left(\frac{2}{3},\infty\right) \cup (-\infty,0)$

(4) None of these

(2) $\left(-\infty,\frac{2}{3}\right]$

- 7. If $A = \{1, 2, 4\}$, then the identity relation on A is :
 - $(1) \{(1, 1)\}$

2

- $(2) \{(1,1)(1,2)\}$
- $(3) \{(2, 2), (1, 4)\}$
- $(4) \ \{(1, 1), (2, 2), (4, 4)\}\$
- 8. Let $A = \{x, y, z\}$ and $B = \{1, 2\}$, then the number of relations from A into B are : (1) 2^5
 - (1) 2
 - $(2) 2^6$
 - $(3) 2^3$
 - $(4) 2^2$

9. The radian measure corresponding to $-47^{\circ}30'$ is :

(1)	$-\frac{15}{72}\pi$	(2)	$\frac{15}{72}\pi$
(3)	$-\frac{19}{72}\pi$	(4)	$\frac{19}{72}\pi$

10. The value of $\sin\left(\frac{7\pi}{6}\right)$ is :

(1)
$$-\frac{\sqrt{3}}{2}$$
 (2) $\frac{1}{2}$

(3)
$$-\frac{1}{\sqrt{2}}$$
 (4) $\frac{\sqrt{3}}{2}$

11. The additive inverse of $(2+3i)^2$ is :

- (1) -5 + 12i
- (2) -9 + 12i
- (3) 5-12i
- (4) 9 12i

12. Multiplicative inverse of 4 + 7i is :

- (1) (-4-7i)(2) - 4 + 7i
- $(3) -\frac{4}{65} + \frac{7}{65}i$

(4)
$$\frac{4}{65} - \frac{7}{65}i$$

13. How many terms are there in A. P. 20, 22, 24, 26, ..., 100 ?

(1) 40	(2) 41
(3) 42	(4) 43

14. The sum of the first 15 terms of the A. P. 5, 10, 15, 20, is :

- (1) 400
- (2) 425
- (3) 600
- (4) 525

15. If $\begin{bmatrix} 1 & 0 \\ 3 & -4 \end{bmatrix} + \begin{bmatrix} a & 1 \\ -1 & b \end{bmatrix} = \begin{bmatrix} 2 & 1 \\ 2 & -2 \end{bmatrix}$, then value of a and b are : (1) 1, -2(2) -1, 2(3) -1, -2(4) 1, 2

16.	Inverse matrix of $\begin{bmatrix} 2 & -3 \\ -4 & 2 \end{bmatrix}$ is :			
	$(1) -\frac{1}{8} \begin{bmatrix} 2 & 3 \\ 4 & 2 \end{bmatrix}$		(2) $-\frac{1}{8}$	$\begin{bmatrix} 2 & 4 \\ 3 & 2 \end{bmatrix}$
	$(3) \frac{1}{8} \begin{bmatrix} 2 & 3 \\ 4 & 2 \end{bmatrix}$		(4) $\frac{1}{8}$	2 4 3 2
		2	-3 1	
17.	The minor of -3 in the determinant	4	0 5	is :
Ċ.	01111.00 m	-1	67	
	(1) 30 -		(2) 33	
	(3) 28		(4) 32	

18. Let A be a square matrix of order 3×3 , then IKAI is :

- (1) 3K |A|
- (2) K |A|
- (3) $K^2 |A|$
- (4) $K^{3}|A|$

19. Matrices A and B will be inverse of each other only if :

- (1) AB = BA
- (2) AB = BA = 0
- (3) AB = BA = I
- (4) AB = I, BA = 0

20. Which of the following is not a property of inverse of a matrix ?

- (1) $(A^{-1})^{-1} = A$
- (2) $(A^T)^{-1} = (A^{-1})^T$
- (3) $(AB)^{-1} = A^{-1}B^{-1}$
- (4) $Adj(A^{-1}) = (Adj A)^{-1}$

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21.	For any positive integer <i>n</i> , $\lim_{x \to \infty} x \to \infty$	$m \frac{x^n - a^n}{x - a}$ is:		
	(1) 0			
	(2) 1			
	(3) na^n			
	(4) na^{n-1}			
22.	$\lim_{x \to 0} \frac{\sin 4x}{\sin 2x}$ is equal to :			
	(1) 0	(2) 1		
	(3) 2	(4) 3		
23.	$\lim_{\theta \to \frac{\pi}{2}} (\sec \theta - \tan \theta) = ?$	C.C. Same in a start i		
	a sumber C, then which a solution is	(2) 1	i gnedellol	
	(3) -1	(4) ∞ •••• ••••••••••••••••••••••••••••••		
24	- If $f(x) = x \sin x$, then $f'\left(\frac{\pi}{2}\right)$) is :		
	(1) 0			•
	(3) -1			
	(4) $\frac{1}{2}$			
-25	Derivative of e^{x^2} is :	2 (4)		
	(1) e^{x^2}			
	$(2) 2\lambda$			
	(3) $2.e^{x}$ (4) $2x^{e^{x^{2}}}$	(4) con-		
			•	

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26. A function f(x) is not continuous at x = 1 if :

- (1) $\lim_{x \to \infty} f(x) \neq f(1)$
- (2) $\lim_{x \to 1} f(x) = f(1)$
- (3) $f^1(1) \neq 0$
- (4) None of these

27. If $f(x) = \begin{cases} x+\lambda & ; x < 3 \\ 4 & ; x = 3 \text{ is continuous at } x = 3, \text{ then the value of } \lambda \text{ is :} \\ 3x-5 & ; x > 3 \end{cases}$ (1) 1 (2) -2

- (3) -1 (4) 0
- **28.** If f and g be two real functions continuous at a real number 'C', then which one of the following is not true ?

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- (1) f + g is continuous at x = c
- (2) f g is continuous at x = c
- (3) f. g is continuous at x = c
- (4) $\frac{f}{g}$ is continuous at x = c, if $g(0) \neq 0$

29. If $x - y = \pi$, then $\frac{dy}{dx} = ?$

- (1) 0 (2) 1
- (3) 2 (4) 3

30. If $x = a(t - \sin t)$ and $y = a(1 - \cos t)$ then $\frac{dy}{dx} = ?$

- (1) $\sec t$ (2) $\csc t$
- (3) $\tan \frac{t}{2}$ (4) $\cot \frac{t}{2}$

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31.	If $x = t^2$ and $y = t^3$, then $\frac{d^2 y}{dx^2} = ?$		38. [sint + cas] fr = 1
	(1) $\frac{3}{4t}$	(2) \sqrt{t}	2 + 2 ms (1)
	(3) t (3) $t = x + z$ containing only beau	(4) $\frac{3}{2\sqrt{t}}$	
32.	The rate of change of the area of a is :	circle with respect	to its radius 'r' where $r = 3$ cm,
	(1) 2π	(2) 4π	
	(3) 6π	(4) 10π	
33.	The point, at which the tangent to t	he curve $y = \sqrt{4x - x}$	$\overline{3}$ – 1 has its slope $\frac{2}{3}$, is :
	(1) (1, 2)	(2) (2, 1)	
	(3) (2, 3)	(4) (3, 2)	
34.	If $f'(x) = x^2 + 5$ and $f(0) = -1$, the	then $f(x) = ?$	
	(1) $\frac{1}{x^3} + 5x - 1$		
	3		
	(2) $\frac{1}{3}x^3 + 5x + 1$) (2) .	
	(3) $x^3 + 5x + 1$		
	(4) $x^3 + 5x - 1$		
	2		
35	• The value of $\int_{a}^{b} (px^3 + qx + r)dx$,	is :	
	(1) r		
	(1) r (2) $2r$		
	(2) $2r$ (3) $3r$		
	(4) 4r		

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$c \sin r + \cos r$		
36. $\int \frac{\sin x + \cos x}{\sqrt{1 + \sin 2x}} dx = ?$		H. v= Los v= v H. H.
(1) $\sin x + c$	(c) (2) $x + c$	
$(3) \cos x + c$	(4) $x^2 + c$	
37. Area bounded by the curve $y = \log y$	(A)	4.(6)
(1) log 4 sq. unit	$(2) (\log 4 - 1) \cos 4$	hates $x = 1$, $x = 2$ is:
(3) $(\log 4 + 1)$ sq. unit	(4) $(\log 4 - 2)$ sq	. unit . unit
38. The general solution of $x^2 \frac{dy}{dx} = 6$ is	:)	
$(1) y = \frac{-6}{x} + c$		
$(2) y = \frac{6}{x} + c$		
(3) $y = \frac{12}{c} + c$ (1.2) (
(4) y = x + c	9.	
	f(0) = -1 then $f(x)$	10182+ 12-1019 1 SP
39. The order and degree of differentiation	al equation $\frac{d^4y}{d^4} - 4 - 4$	$\frac{d^3y}{2} + 8\frac{d^2y}{2} - 8\frac{dy}{4} + 4y = 0$
are :	dx"	$dx dx^2 dx$
(1) (4, 4)	(2) (4, 1)	
(3) (1, 1)	(4) (1, 4)	14404 2 - 12)
40. The maximum value of		
P = x + 3y	CO 1	
Such that :		
$2x + y \le 20$		
$x + 2y \le 20$		- (I)
$x \ge 0, y \ge 0$, is :		
(1) 10	(2) (0)	
(3) 30	(2) 00 (4) 25	
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1. Which of the following can not be th	e probability of occurrence of an e	event?
(1) $\frac{2}{3}$		1 (1)
(2) $\frac{3}{2}$		
(3) 0 (4) 1	Point then value of 12 and	47. 11 ¹ 19 - 22
42. In an experiment of rolling a fair di	e and unbiased coin, the sample sp	bace is :
(1) {H1,H2,H3,H4,H5,H6}		E (E)
(2) $\{T1, T2, T3, T4, T5, T6\}$ (2) $\{H1, H2, H3, T4, T5, T6\}$	antia s'his this in an an a	
(4) $\{H1, H2, H3, H4, H5, H6, T1, \}$	T2, T3, T4, T5, T6}	
43. If $P(A) = 0.37$, $P(B) = 0.42$, $P(A)$	$(\cap B) = 0.09$, then $P(A \cup B)$ is :	086.911
(1) 0.7	(2) 0.8	
(3) 0.68	(4) 0.75	
AA Probability of occurrence of an in	possible event is :	
(1) 1	(2) 2	
(3) 0	(4) 0.5	
45. A family has two children. Wh given that at least one of them is	at is the probability that both th a boy?	e children are boys,
(1) $\frac{3}{4}$		
$(2) \frac{1}{-}$		(1) 224
4		
(3) $\frac{1}{2}$		
(4) $\frac{1}{3}$		13 (2)

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46.	Given that $P(A)$	$=\frac{1}{3}, P(B) = \frac{3}{4}$ ar	ad $P(A \cup B) = \frac{11}{12}$,	then P(B/A) is :
	(1) $\frac{1}{6}$		(2) $\frac{5}{6}$	

47.	If ${}^{5}P_{r} = 2$.	${}^{6}p_{r-1}$, then value of 'r' is :	n ·	
	(1)_1	unhiased com, the sample so	(2) 2	
	(3) 3		(4) 4	

In how many ways can 5 men and 4 women be seated in a row so that the women 48. occupy the even places ?

(4) $\frac{1}{2}$

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(1) 2880

(3) $\frac{2}{9}$

- (2) 2860
- (3) 2800
- (4) 2820

The value of ${}^{n}P_{n-1}$ is : 49.

- (1) n! (2) n (3) 2n!
 - (4) 2n

50. The number of squares that can be formed on a Chessboard :

- (1) 224
- (2) 204
- (3) 160
- (4) 64

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51. The number of ways 10 digits numbers can be written using the digits 1 and 2:

(1)	10 _{C2}	(2) 10!
(3)	$10_{c_1} + 9_{c_2}$	(4) 2 ¹⁰

52. In an experiment of tossing three coins at a time, the probability of getting 2 heads and one tail is :

(1)	$\frac{1}{8}$		(2) $\frac{1}{3}$	-
(3)	$\frac{3}{8}$	(2) -2 to 2	(4) $\frac{1}{2}$	ī

53. If A and B are events such that P(A/B) = P(B/A), then :

(2) A = B(1) $B \supset A$ but $A \neq B$

$(4) \quad P(B) = P(A)$ (3) $A \cap B = \phi$

54. If A and B are two independent events, then the probability of occurrence of at least one of A and B is given by :

- (2) P(A) P(B)(1) P(A) + P(B)
- (3) $P(A \cup B)$ $(4) P(A \cap B)$

55. If A and B are independent events such that $P(A) = \frac{3}{5}$ and $P(B) = \frac{1}{5}$, then $P(A \cap B)$

(1) $\frac{3}{25}$ (2) $\frac{4}{5}$ (3) $\frac{3}{10}$ (4) $\frac{2}{5}$

is :

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(1) There should be a fin

56. In context to the Bernoulli trials, which one of the following is not true ?

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- (1) There should be a finite number of trials
- (2) The trials should be independent
- (3) Each trial has more than two outcomes
- (4) The probability of success remains the same in each trial
- 57. Probability can take values :

(1) 0 to 2	.a	(2	(2) -2 to 2
(3) <i>−∞</i> to 1	-	(4	-1 to 1

- 58. In case of binomial distribution, for given values of 'n' and 'p', the probability of x successes P(x = x) is given by :
 - (1) ${}^{x}c_{n} p^{x} q^{n-x}$
 - $(2) \quad {}^{n}c_{x} p^{x}q^{n-x}$
 - (3) $p^{x} \cdot q^{n-x}$
 - $(4) \quad {}^{n}c_{x} p^{x} q^{n}$
- **59.** If a random variable x follows binomial distribution with 'n' number of trials and 'p' probability of success, then mean of x is :
 - (1) p (2) n(1-p)
 - $(3) npq \qquad (4) np$
- 60. The mean and variance of a binomial distribution are 8 and 4 respectively, then P(x=1) is:

(1)	$\frac{1}{2^4}$	(2) $\frac{1}{2^8}$
(3)	$\frac{1}{2^{12}}$	(4) $\frac{1}{2^6}$

A			
61.	The primary data is gathered the	rough :	Which of the followin
	(1) Survey	(2) Books	
	(3) Newspaper	(4) Internet	
62.	Which of the following is a me	easure of central tendency?	
	(1) Mean deviation	astire of contrar tondency .	(4) Mean
	(2) Mean		
	(3) Quartile deviation		
	(4) Standard deviation *		
63.	Pie chart represents the compo	nents of a factor by :	(4) Nommal
	(1) Angles		
	(2) Percentages		i ç oniştani vəlue 5 i
	(3) Sectors		
	(4) None of these		
~			
64.	what is the main purpose of sta	atistics ?	
•	(1) To collect data		(4) is not allocited.
	(2) To analyse data		
	(3) To interpret data		
	(4) All of these		
65.	Which of the following is an ex	cample of qualitative data?	
	(1) Height	a of the following data is	
	(2) Weight		
	(3) Age	* + (S) (2) 4*	
	(4) Gender		
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- (1) Variance
- (2) Median
- (3) Mode
- (4) Mean

67. Which type of data is best represented by a histogram ?

- (1) Categorical
- (2) Discrete
- (3) Continuous
- (4) Nominal
- If a constant value 5 is subtracted from each observation of a set, then the mean of the 68.
 - (1) Increased by 5
 - (2) Decreased by 5
 - (3) Decreased by 25
 - (4) is not affected

Geometric mean of two numbers $\frac{1}{16}$ and $\frac{4}{25}$, is : 69. (1) $\frac{1}{10}$ (2) $\frac{1}{100}$

(3) 10(4) 100

70. The standard deviation of the following data is :

-1, -2, -3, -4, -5, -6, -7 (1) - 2(2) 4 (3) 2(4) -4

71. The mean of 5 observations 1, 2, 6, x and y is 4.2, then x + y is :

- (1) 4 (2) 8
- (3) 15 (4) 12

72. Mean deviation for 'n' observations x_1, x_2, \dots, x_n from their mean \overline{X} is :

(1) $\frac{1}{n} \sum_{i=1}^{n} (X_i - \overline{X})^2$ (2) $\frac{1}{n} \sum_{i=1}^{n} |X_i - \overline{X}|$ (3) $\sum_{i=1}^{n} (X_i - \overline{X})^2$ (4) $\sum_{i=1}^{n} |X_i - \overline{X}|$

73. Mean of first 'n' natural number is :

(1) $\frac{n}{2}$ (3) $\frac{n+1}{2}$ (2) $\frac{n(n+1)}{2}$ (4) $\frac{n-1}{2}$

74. The standard deviation of 10 observations is 09. If 2 is subtracted from each observation, then the new standard deviation is :

- (1) 09 (2) 11
- (3) 08 (4) 07

75. Mean deviation from the median for the following data is :

3, 9, 6, 8, 4, 12, 19, 21

(1) 2	(2)	3
(3) 4	(4)	5

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76. What is the harmonic mean of 5 and 2 ?

(1) $\frac{20}{7}$ (2) $\frac{30}{7}$ (3) $\frac{10}{7}$ (4) $\frac{40}{7}$

77. The sum of deviations about mean is :

- (1) Largest
- (2) Smallest
- (3) Positive
- (4) Zero
- **78.** The relationship between arithmetic mean (A. M.), geometric mean (G. M.) and harmonic mean (H. M.) can be expressed as :
 - (1) A. M. \geq G. M. \geq H. M.
 - (2) A. M. = G. M. H. M.
 - (3) G. M. \geq H. M. \geq A. M.
 - (4) A. M. \leq G. M. \leq H. M.

79. The range is calculated as :

(1) The sum of all data values

- (2) The product of all data values
- (3) The square of the mean deviation
- (4) The difference between the largest and smallest data values
- 80. Mode of the following data is :

3, 2, 5, 2, 3, 5, 6, 5, 6, 3, 2, 5, 1

(1)	2		• E	(2) 3	
(3)	5			(4) 6	

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81. A class of 30 boys and 15 girls is given a test in statistics. The average marks obtained by boys is 15 and by girls is 6. The average of whole class is :

(1) 10.5

(2) 12

(3) 12.5

(4) 10

82. The sum of square of deviations for 10 observations taken from mean is 250. The value of variance is :

(1)	25	· · · · · · · · · · · · · · · · · · ·	(2)	30	
(3)	40		(4)	45	

83. The variance of 6, 8, 10, 12, 14 is :

- (1) 1
- (2) 12
- (3) 18
- (4) 8

84. The mean of 8 numbers is 15. A new number 24 is added. The mean of nine numbers is :

(2) 12

(1)	18			(2)	16	
(3)	12			(4)	11	

85. The median of the series :

3, 18, 7, 20,	11,	12,9), 17,	22		
(1) 11						

(3) 10 (4) 8

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86.	Find out the missing n	umber of the se	ries :				
	2, 6, 14, 26, 42,	sada oloriwita :					
	(1) 52		(2) 62				
	(3) 72		(4) 60	(2), 12			
87.	Find out the missing le	etters of the serie	es :				
	x xx yyx	xyyyxxxx					
	(1) <i>x</i> , <i>x</i> -		(2) <i>y</i> , <i>y</i>				
	(3) <i>y</i> , <i>x</i>		(4) <i>x</i> , <i>y</i>				
88.	In a code language if 'TRAINS' is coded as 'RTIASN', how 'PISTOL' will be coded in						
	the same language ?			83 The variance of 0.			
	(1) IPTSLO		(2) IPSTLO				
	(3) SIPTLO		(4) IPTLSO				

89. A person started walking towards North. After walking 30 metres, he turned towards left and walked 40 metres. He then turned left and walked 30 metres. He again turned left and walked 50 metres. How far is he from his original position ?

(1)	40 metres	(2)	30 metres	
(3)	20 metres	(4)	10 metres	

90. If + means \times , - means +, \times means \div and \div means -, then :

 $6 - 3 + 8 \times 3 \div 4 = ?$

1)	4		•	(2)	5

(3) 10 (4) 12

A					19
91.	'Page' is related to 'Book' as '	Leaf' is rela	ted to :	6 Calculate the ample inte	
	(1) Root				
	(2) Tree				
	(3) Fruit				
	(4) Franct				
	(4) Forest				
92.	Newspaper : Press : : Cloth :	?			
	(1) Fibre		(2) Textile		
	(3) Tailor		(4) Mill		
93.	In 10 years, 'A' will be twice	as old as '	B' was 10 years	ago. If at present 'A' is 9 yes	ars
	older than 'B', the present age	e of 'B' is :			
	(1) 19 years				
	(2) 29 years				
	(3) 39 years				
	(4) 59 years				
94.	Pointing towards a person, a	man said to	o a woman "His	s mother is the only daughter	of
	your father". How is woman	related to th	nat person ?		
	(1) Daughter		(2) Mother		
	(3) Sister		(4) Wife		
95.	Mirror image of is :				
	(1)				
	(2)				
	.(3)				
	(4)				
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96. Calculate the simple interest of Rs. 7200 at $12\frac{3}{4}$ % per annum for 9 months :

- (1) Rs. 688.50
- (2) Rs. 670.50
- (3) Rs. 700.1
- (4) Rs. 690
- **97.** A man buys 25 chairs for Rs. 375 and sells them at profit equal to the selling price of 5 chairs. What is the selling price of one chair ?
 - (1) Rs. 14.50
 - (2) Rs. 15.20
 - (3) Rs. 17.20
 - (4) Rs. 18.75
- **98.** A man riding on a bicycle at a speed of 15 km/h crosses a bridge in 5 minute. The length of the bridge is :

(2) $1\frac{1}{4}$ km

(4) $2\frac{1}{2}$ km

- (1) 1 km
- (3) 2 km
- **99.** The HCF of $\frac{9}{10}$, $\frac{12}{25}$, $\frac{18}{25}$ and $\frac{21}{40}$ is: (1) $\frac{3}{5}$ (2) $\frac{252}{5}$ (3) $\frac{3}{1400}$ (4) $\frac{52}{140}$
- 100. Find the missing number :

$\frac{5}{13}\frac{2}{3}$	$\frac{7}{?}$ 5	$\frac{6}{29}\frac{4}{5}$	
(1) 37			(2) 41
(3) 47			(4) 18

(DO NOT OPEN THIS B SU	Tota QUESTION BOOKLET BEFO ARE ASKED TO DO SO) UG-EE-June, 2024 BJECT : Statistics (4 Y	Al No. of Printed Pages : 21 RE TIME OR UNTIL YOU SET-Y 10038 Sr. No.
Time : 11/4 Hours	Max. Marks : 100 (in words)	Total Questions : 100
Name	Date of Birth	
Father's Name Date of Examination	Mother's Name	
(Signature of the Candidat	e)	(Signature of the Invigilator)

CANDIDATES MUST READ THE FOLLOWING INFORMATION/INSTRUCTIONS BEFORE STARTING THE QUESTION PAPER.

1. All questions are compulsory.

- 2. The candidates *must return* the question booklet as well as OMR Answer-Sheet to the Invigilator concerned before leaving the Examination Hall, failing which a case of use of unfairmeans / mis-behaviour will be registered against him / her, in addition to lodging of an FIR with the police. Further the answer-sheet of such a candidate will not be evaluated.
- 3. Keeping in view the transparency of the examination system, carbonless OMR Sheet is provided to the candidate so that a copy of OMR Sheet may be kept by the candidate.
- 4. Question Booklet along with answer key of all the A, B, C & D code shall be got uploaded on the University Website immediately after the conduct of Entrance Examination. Candidates may raise valid objection/complaint if any, with regard to discrepancy in the question booklet/answer key within 24 hours of uploading the same on the University Website. The complaint be sent by the students to the Controller of Examinations by hand or through email. Thereafter, no complaint in any case, will be considered.
- The candidate *must not* do any rough work or writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question booklet itself. Answers *must not* be ticked in the question booklet.
- 6. There will be no negative marking. Each correct answer will be awarded one full mark. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.
- 7. Use only Black or Blue Ball Point Pen of good quality in the OMR Answer-Sheet.
- 8. Before answering the questions, the candidates should ensure that they have been supplied correct and complete booklet. Complaints, if any, regarding misprinting etc. will not be entertained 30 minutes after starting of the examination.

- 1. A class of 30 boys and 15 girls is given a test in statistics. The average marks obtained by boys is 15 and by girls is 6. The average of whole class is :
 - (1) 10.5
 - (2) 12
 - (3) 12.5
 - (4) 10
- 2. The sum of square of deviations for 10 observations taken from mean is 250. The value of variance is :

(1)	25	· · · · · · · · · · · · · · · · · · ·	(2)	30
(3)	40		(4)	45

- 3. The variance of 6, 8, 10, 12, 14 is :
 - (1) 1
 - (2) 12
 - (3) 18
- (4) 8

4. The mean of 8 numbers is 15. A new number 24 is added. The mean of nine numbers is:

Theans 4, or means 4

(1)	18		(2)	16
(3)	12		(4)	11

5. The median of the series :

3, 18, 7, 20, 11, 12, 9, 17, 22

(1)	11			(2)	12	
(3)	10			(4)	8	

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	6. Find out the missing	number of the series :	in the loss of an information
	2, 6, 14, 26, 42,	side is 0.1 he average of whole class	
	(1) 52	(2) 62	
	(3) 72	(4) 60	
7	Find out the missing le	etters of the series :	
	X YY VVY		
		<i>yyyxxxx</i>	
	(1) <i>x</i> , <i>x</i>	- (2) y, y	
	(3) <i>y</i> , <i>x</i>	(4) x, y	
8.	In a code language if	TRAINS' is coded as 'RTIASN' have 'I	
	the same language ?	For the second as RELASIN, NOW F	PISTOL' will be coded i
	(1) IPTSLO	(2) IPSTLO	
	(3) SIPTLO	(4) IPTLSO	
9.	A person started walking	ig towards North After well.	
	left and walked 40 metr	es He then turned 1.6	etres, he turned towards
	left and walked 50 metre	es. How far is he from his original positi	metres. He again turned
	(1) 40 metres	(2) 30 metres	
	(3) 20 metres	(4) 10 metres	

B

10. If + means ×, - means +, × means ÷ and ÷ means -, then :
6-3+8×3÷4=?
(1) 4
(2) 5

(3) 10 (4) 12

The mean of 5 observations 1, 2, 6, x and y is 4.2, then x + y is : 11.

(2) 8 (1) 4 (4) 12 (3) 15

Mean deviation for 'n' observations $x_1, x_2, ..., x_n$ from their mean \overline{X} is : 12.

- (1) $\frac{1}{n} \sum_{i=1}^{n} (X_i \overline{X})^2$ (2) $\frac{1}{n}\sum_{i=1}^{n} |X_i - \overline{X}|$ $(3) \quad \sum_{i=1}^{n} (X_i - \overline{X})^2$ (4) $\sum_{i=1}^{n} |X_i - \overline{X}|$
- 13. Mean of first 'n' natural number is :
 - (2) $\frac{n(n+1)}{2}$ (1) $\frac{n}{2}$ (4) $\frac{n-1}{2}$ M H 2 M D 2 M (b) (3) $\frac{n+1}{2}$

The standard deviation of 10 observations is 09. If 2 is subtracted from each 14. observation, then the new standard deviation is :

as in year ago. Y is p

- (2) 11(1) 09
- (4) 07 (3) 08

15. Mean deviation from the median for the following data is :

3, 9, 6, 8, 4, 12, 19, 21

(1)	2	*	(2)	3	
(3)	4		(4)	5	

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(1)	$\frac{20}{7}$		(2)	$\frac{30}{7}$
(3)	$\frac{10}{7}$	The second the second X	(4)	$\frac{40}{7}$

- 17. The sum of deviations about mean is :
 - (1) Largest
 - (2) Smallest
 - (3) Positive
 - (4) Zero .
- **18.** The relationship between arithmetic mean (A. M.), geometric mean (G. M.) and harmonic mean (H. M.) can be expressed as :
 - (1) A. M. \geq G. M. \geq H. M.
 - (2) A. M. = G. M. H. M.
 - (3) G. M. \geq H. M. \geq A. M.
 - (4) A. M. \leq G. M. \leq H. M.
- **19.** The range is calculated as :
 - (1) The sum of all data values
 - (2) The product of all data values
 - (3) The square of the mean deviation
 - (4) The difference between the largest and smallest data values
- 20. Mode of the following data is :

3, 2, 5, 2, 3, 5, 6, 5, 6, 3, 2, 5, 1 (1) 2 (2) 3

(3) 5 (4) 6

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B

21. 'Page' is related to 'Book' as 'Leaf' is related to :

- (1) Root
- (2) Tree
- (3) Fruit
- (4) Forest
- 22. Newspaper : Press : : Cloth : ?

(1)	Fibre		(2) Textile
	-	*	
(3)	Tailor		(4) Mill

23. In 10 years, 'A' will be twice as old as 'B' was 10 years ago. If at present 'A' is 9 years older than 'B', the present age of 'B' is :

A man buys 25 coasts for Ex. 375 and sells there

- (1) 19 years
- (2) 29 years
- (3) 39 years
- (4) 59 years

24. Pointing towards a person, a man said to a woman "His mother is the only daughter of your father". How is woman related to that person ?

- (1) Daughter (2) Mother
- (3) Sister (4) Wife
- **25.** Mirror image of \rightarrow is :

·(1)	>
(2)	*
(3)	4
(4)	->

26. Calculate the simple interest of Rs. 7200 at $12\frac{3}{4}$ % per annum for 9 months :

- (1) Rs. 688.50
- (2) Rs. 670.50
- (3) Rs. 700.1
- (4) Rs. 690
- **27.** A man buys 25 chairs for Rs. 375 and sells them at profit equal to the selling price of 5 chairs. What is the selling price of one chair ?
 - (1) Rs. 14.50
 - (2) Rs. 15.20
 - (3) Rs. 17.20
 - (4) Rs. 18.75
- 28. A man riding on a bicycle at a speed of 15 km/h crosses a bridge in 5 minute. The length of the bridge is :

(2) $1\frac{1}{4}$ km

(4) $2\frac{1}{2}$ km

- (1) 1 km
- (3) 2 km

29. The HCF of $\frac{9}{10}$, $\frac{12}{25}$, $\frac{18}{25}$ and $\frac{21}{40}$ is :

- (1) $\frac{3}{5}$ (2) $\frac{252}{5}$ (3) $\frac{3}{1400}$ (4) $\frac{52}{140}$
- **30.** Find the missing number :



- $\{1, 2, 3, \dots, n\}$
- (1) n
- (2) n^2
- (3) 2n
- $(4) 2^n$

32. If $A = \{1, 2, 3\}, B = \{3, 4\}, C = \{4, 5, 6\}$, then $A \cup (B \cap C)$ is :

- (1) {3}
- (2) {1, 2, 3, 4}
- (3) {1, 2, 3, 5}
- (4) {1, 2, 3, 4, 5, 6}
- **33.** In rule method, the null set is represented by :
 - (1) { }
 - (2)
 - (3) $\{x : x = x\}$
 - (4) $\{x : x \neq x\}$
- **34.** Let U = {1, 2, 3,, 10}, A = {1, 2, 5}, B = {6, 7}, then A \cap B' is (Where A' & B' represent compliment of A and B respectively):
 - (1) A
 - (2) B'
 - (3) A'
 - (4) B
- 35. In a group of 70 people, 37 like coffee, 52 like tea and each person likes at least one of the two drives. How many like both coffee and tea?
 - (1) 17
 - (2) 18
 - (3) 19
 - (4) 20

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36. The inequality $\frac{2}{x} < 3$ is true, when x belongs to :

(1) $\left[\frac{2}{3}, \infty\right)$ (2) $\left(-\infty, \frac{2}{3}\right]$ (3) $\left(\frac{2}{3}, \infty\right) \cup (-\infty, 0)$ (4) None of these B

- **37.** If $A = \{1, 2, 4\}$, then the identity relation on A is :
 - $(1) \{(1, 1)\}$
 - $(2) \{(1, 1) (1, 2)\}$.
 - $(3) \{(2; 2), (1, 4)\}\$
 - $(4) \ \{(1, 1), (2, 2), (4, 4)\}$

38. Let $A = \{x, y, z\}$ and $B = \{1, 2\}$, then the number of relations from A into B are :

- $(1) 2^5$
- $(2) 2^6$
- $(3) 2^3$
- $(4) 2^2$

39. The radian measure corresponding to $-47^{\circ}30'$ is :

(1)	$-\frac{15}{72}\pi$	(2)	$\frac{15}{72}\pi$
(3)	$-\frac{19}{72}\pi$	(4)	$\frac{19}{72}\pi$

40. The value of $\sin\left(\frac{7\pi}{6}\right)$ is :

(1)
$$-\frac{\sqrt{3}}{2}$$
 (2) $\frac{1}{2}$
(3) $-\frac{1}{\sqrt{2}}$ (4) $\frac{\sqrt{3}}{2}$

The number of ways 10 digits numbers can be written using the digits 1 and 2.: 41.

(1)	10 _{C2}	(2)	10!
	- 2		

(4) 2¹⁰ (3) $10_{C_1} + 9_{C_2}$

42. In an experiment of tossing three coins at a time, the probability of getting 2 heads and one tail is :

(1)	$\frac{1}{8}$	(2) $\frac{1}{3}$
(3)	3/8	(4) $\frac{1}{2}$

43. If A and B are events such that P(A/B) = P(B/A), then :

(2) A = B(1) $B \supset A$ but $A \neq B$

(4) P(B) = P(A)(3) $A \cap B = \phi$

44. If A and B are two independent events, then the probability of occurrence of at least one of A and B is given by :

(2) P(A) - P(B)(1) P(A) + P(B)

$(3) P(A \cup B)$	(4)	$P(A \cap B)$
--------------------	-----	---------------

45. If A and B are independent events such that $P(A) = \frac{3}{5}$ and $P(B) = \frac{1}{5}$, then $P(A \cap B)$

(1) $\frac{3}{25}$ (2) $\frac{4}{5}$ (3) $\frac{3}{10}$ (4) $\frac{2}{5}$

is :

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- 46. In context to the Bernoulli trials, which one of the following is not true ?
 - (1) There should be a finite number of trials
 - (2) The trials should be independent
- (3) Each trial has more than two outcomes
 - (4) The probability of success remains the same in each trial
- 47. Probability can take values :

(1) 0 to 2		(2) -2 to 2
(3) <i>−∞</i> to 1	~	(4) -1 to 1

- **48.** In case of binomial distribution, for given values of 'n' and 'p', the probability of x successes P(x = x) is given by :
 - (1) $^{x}c_{n} p^{x} q^{n-x}$
- $(2) \quad {}^{n}c_{x} p^{x}q^{n-x}$
 - (3) $p^{x} \cdot q^{n-x}$
 - $(4) \ ^{n}c_{x} p^{x} q^{n}$
- **49.** If a random variable x follows binomial distribution with 'n' number of trials and 'p' probability of success, then mean of x is :
 - (1) p (2) n(1-p)
 - $(3) npq \qquad (4) np$
- 50. The mean and variance of a binomial distribution are 8 and 4 respectively, then P(x=1) is:

(1)	$\frac{1}{2^4}$		(2)	$\frac{1}{2^8}$
(3)	$\frac{1}{2^{12}}$		(4)	$\frac{1}{2^{6}}$

В				1
51.	The primary data is gathered	through :	har could be to the	
	(1) Survey	(2) Books		
	(3) Newspaper	(4) Internet	(2) Median, paibald (2)	
52.	Which of the following is a r	neasure of central tendency	abol4 (1)	
	(1) Mean deviation	neasure of central tendency	(4) Mean	
	(2) Mean			
	(3) Ouartile deviation			
	(4) Standard deviation			
53.	Pie chart represents the comp	oonents of a factor by :	(4) Nominai	
	(1) Angles			
	(2) Percentages			
	(3) Sectors			
	(4) None of these	is a line of the l		
54.	What is the main purpose of s	statistics ?		
	(1) To collect data			
	(2) To analyse data			
	(3) To interpret data			
	(4) All of these		a) 10	
55.	Which of the following is an a	example of qualitative data ?	(3) 10	
	(1) Height	of the following pate is :		
	(2) Weight			
	(3) Age	(2) 4	- 0+	
	(4) Gender			
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56. Which of the following is a measure of dispersion ?

- (1) Variance
- (2) Median
- (3) Mode
- (4) Mean

57. Which type of data is best represented by a histogram ?

- (1) Categorical
- (2) Discrete
- (3) Continuous
- (4) Nominal
- **58.** If a constant value 5 is subtracted from each observation of a set, then the mean of the set is :
 - (1) Increased by 5
 - (2) Decreased by 5
 - (3) Decreased by 25
 - (4) is not affected

59.	Geometric mean of two	o numbers	$\frac{1}{16}$ and	$\frac{4}{25}$, is :	
	(1) $\frac{1}{10}$			(2)	$\frac{1}{100}$	
	(3) 10		tilmp 1	(4)	100	

60. The standard deviation of the following data is :

-1,	-2, -3, -4,	-5, -6,	-7	
(1)	- 2			(2)
(3)	2			(4)

В						
61.	For any positive integer	n, $\lim_{x \to a} \frac{x^n - a^n}{x - a}$	n - is :		aranat A mai ta	ð
	(1) 0					
	(2) 1 (2) n^{n}					
	(3) na^n					
	(4) na^{n-1}					
62.	$\lim_{x \to 0} \frac{\sin 4x}{\sin 2x}$ is equal to $\frac{1}{2}$:				
	(1) 0	and the starts	(2) 1			
	(3) 2	5. (5)	(4) 3			
63.	$\lim_{\theta \to \frac{\pi}{2}} (\sec \theta - \tan \theta) = ?$	0.(4)				
	and 2 for roll . O roda				If (and	
	(1) 0		(2) 1			
	(3) -1		(4) ∞			
64.	If $f(x) = x \sin x$, then f	$\left(\frac{\pi}{2}\right)$ is :				
	(1) 0					
	(2) 1					
	(3) -1					
	(4) $\frac{1}{2}$					
	2					
65.	Derivative of e^{x^2} is :					
	(1) e^{x^2} (2) $2x$					
	$(2) = x^2$					
	(3) $2.e^{x}$ (4) $2x^{e^{x^{2}}}$	$(4) \cot \frac{t}{2}$				·

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66. A function f(x) is not continuous at x = 1 if :

- (1) $\lim_{x \to \infty} f(x) \neq f(1)$
- (2) $\lim_{x \to 1} f(x) = f(1)$
- (3) $f^{1}(1) \neq 0$
- (4) None of these

67. If $f(x) = \begin{cases} x+\lambda & ; x < 3 \\ 4 & ; x = 3 \text{ is continuous at } x = 3, \text{ then the value of } \lambda \text{ is :} \\ 3x-5 & ; x > 3 \end{cases}$ (1) 1 (3) -1 (4) 0

68. If f and g be two real functions continuous at a real number 'C', then which one of the following is not true ?

B

- (1) f + g is continuous at x = c
- (2) f g is continuous at x = c
- (3) f. g is continuous at x = c
- (4) $\frac{f}{g}$ is continuous at x = c, if $g(0) \neq 0$
- **69.** If $x y = \pi$, then $\frac{dy}{dx} = ?$ (1) 0 (3) 2 **70.** If $x = a(t - \sin t)$ and $y = a(1 - \cos t)$ then $\frac{dy}{dx} = ?$

(1) sec t (3) $\tan \frac{t}{2}$ (1) $\cot \frac{t}{2}$ (2) $\cot \frac{t}{2}$
15

71. The additive inverse of $(2+3i)^2$ is :

- (1) 5 + 12i
- (2) -9 + 12i
- (3) 5 12i
- (4) 9 12i

72. Multiplicative inverse of 4 + 7i is :

- (1) (-4-7i)
- (2) 4 + 7i
- $(3) -\frac{4}{65} + \frac{7}{65}i$
- (4) $\frac{4}{65} \frac{7}{65}i$

73. How many terms are there in A. P. 20, 22, 24, 26,, 100 ?

(1) 40(2) 41 (3) 42 (4) 43

The sum of the first 15 terms of the A. P. 5, 10, 15, 20, is : 74.

- (1) 400
- (2) 425
- (3) 600
- (4) 525

75. If $\begin{bmatrix} 1 & 0 \\ 3 & -4 \end{bmatrix} + \begin{bmatrix} a & 1 \\ -1 & b \end{bmatrix} = \begin{bmatrix} 2 & 1 \\ 2 & -2 \end{bmatrix}$, then value of a and b are :

- (1) 1, -2
- (2) -1, 2
- (3) -1, -2
- (4) 1, 2

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76. Inverse matrix of $\begin{bmatrix} 2 & -3 \\ -4 & 2 \end{bmatrix}$ is : $(1) \quad -\frac{1}{8} \begin{bmatrix} 2 & 3 \\ 4 & 2 \end{bmatrix}$ $(2) \quad -\frac{1}{8} \begin{bmatrix} 2 & 4 \\ 3 & 2 \end{bmatrix}$ $(4) \begin{array}{c} \frac{1}{8} \begin{bmatrix} 2 & 4 \\ 3 & 2 \end{bmatrix}$ $(3) \ \frac{1}{8} \begin{bmatrix} 2 & 3 \\ 4 & 2 \end{bmatrix}$

B

			2	-3	1	
7.	The minor of -3 in the determined	inant	4	0	5	is :
and the second	11 March 1 March 1	in in	-1	6	7	
	(1) 30 *			(2) 3	33	
	(3) 28			(4) 3	32	

78. Let A be a square matrix of order 3×3 , then IKAl is :

- (1) 3K IAI
- (2) K |A|
- (3) $K^2 |A|$
- (4) $K^{3}|A|$

79. Matrices A and B will be inverse of each other only if :

- (1) AB = BA
- (2) AB = BA = 0
- (3) AB = BA = I
- (4) AB = I, BA = 0

Which of the following is not a property of inverse of a matrix ? 80.

- (1) $(A^{-1})^{-1} = A$
- (2) $(A^T)^{-1} = (A^{-1})^T$
- (3) $(AB)^{-1} = A^{-1}B^{-1}$
- (4) $Adj(A^{-1}) = (Adj A)^{-1}$

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•	which of the following can not	be the probability of occurrence of	f an event ?
	(1) $\frac{2}{3}$		
	(2) $\frac{3}{2}$		
	2		
	(3) 0		
	(4) 1		
	In an experiment of rolling a fair	die and unbiased coin, the sample	e space is :
	(1) {H1, H2, H3, H4, H5, H6}		
	(2) {T1, T2, T3, T4, T5, T6}		
	(3) {H1, H2, H3, T4, T5, T6}	ways can 5 men and 4 women	
	(4) {H1, H2, H3, H4, H5, H6, T	1, T2, T3, T4, T5, T6}	to oth ganos
	If $P(A) = 0.37$, $P(B) = 0.42$, $P(A) = 0.42$	$A \cap B$ = 0.09, then $P(A \cup B)$ is :	19 2880
	(1) 0.7	(2) 0.8	
	(3) 0.68	(4) 0.75	
	Probability of occurrence of an in	npossible event is :	
	(1) 1	(2) 2	
	(3) 0	(4) 0.5	
	A family has two children. What given that at least one of them is a	at is the probability that both the a boy ?	e children are
	(1) $\frac{3}{4}$		

83.

84.

85. e boys,

(2) $\frac{1}{4}$ (3) $\frac{1}{2}$

B

81

(4) $\frac{1}{3}$

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			1
86.	• Given that $P(A) = \frac{1}{3}$, $P(B) = \frac{3}{4}$ a	and $P(A \cup B) = \frac{11}{12}$, then P(B/A)	is:
	(1) $\frac{1}{6}$	(2) $\frac{5}{6}$	
	(3) $\frac{2}{9}$	(4) $\frac{1}{2}$	
87.	If ${}^{5}P_{r} = 2$. ${}^{6}p_{r-1}$, then value of 'r'	' is :	
	(1) 1	(2) 2	
100	(3) 3	(4) 4	
88.	In how many ways can 5 men a	nd 4 women he seated in a row	we so that the women
	occupy the even places ?		w so mat me women
	(1) 2880		
	(2) 2860		
	(3) 2800		
	(4) 2820	examence of an impossible cve	
89.	The value of ${}^{n}P_{n-1}$ is :		
	(1) <i>n</i> !	(2) 2	
	(3) $2n!$		
	(0) 200.	(4) $2n$	
90.	The number of squares that can be	formed on a Chessboard :	
	(1) 224		
	(2) 204		
	(3) 160		
	(4) 64		

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			•	
В				10
91. If $x = t^2$ and $y = t^3$, the formula $t = t^3$ and $y = t^3$.	then $\frac{d^2 y}{dx^2} = ?$			19
(1) $\frac{3}{4t}$		(2) \sqrt{t}		*
(3) <i>t</i>		(4) $\frac{3}{2\sqrt{t}}$		
92. The rate of change of	the area of a circ	ele with respec	t to its radius 'r' where $r =$	= 3 cm,
(1) 2π		(2) 4π		
(3) 6π	•	(4) 10π		
93. The point, at which the	e tangent to the cu	rve $y = \sqrt{4x}$	$\overline{3}$ – 1 has its slope $\frac{2}{2}$, is :	
(1) (1, 2)		(2) (2, 1)	· · · · · · · · · · · · · · · · · · ·	
(3) (2, 3) 94 If (1(2) 2		(4) (3, 2)		
(1) $\frac{1}{3}x^3 + 5x - 1$	f(0) = -1, then $f(0) = -1$	(x) = ?		
(2) $\frac{1}{3}x^3 + 5x + 1$				
(3) $x^3 + 5x + 1$ (4) $x^3 + 5x - 1$				
(4) $x^{2} + 5x - 1$ 95. The value of $\int_{1}^{2} (px^{3} + q)^{2}$	qx+r)dx, is :			
-2 (1) r				
(2) $2r$ (3) $3r$	(2) 750			
(4) 4 <i>r</i>				

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20			B
96.	$\int \frac{\sin x + \cos x}{\sqrt{1 + \sin 2x}} dx = ?$		
	(1) $\sin x + c$	(2) $x + c$	
	$(3) \cos x + c$	(4) $x^2 + c$	
97.	Area bounded by the curve $y = \log x$, x	x - axis and the ordinates $x = 1, x = 1$	= 2 is :
	(1) log 4 sq. unit	(2) $(\log 4 - 1)$ sq. unit	
	(3) (log 4 + 1) sq. unit	(4) $(\log 4 - 2)$ sq. unit	
	, dv		
98.	The general solution of $x^2 \frac{dy}{dx} = 6$ is :		
	(1), $y = \frac{-6}{-6} + c$ (6)		
	x		
	(2) $y = \frac{6}{r} + c$		
	12		
	(3) y = - + c		
	$(4) y = x + c \tag{4}$		
- 00		$d^4 v d^3 v d^2 v$	du
99.	The order and degree of differential	equation $\frac{d^2y}{dx^4} - 4\frac{d^2y}{dx} + 8\frac{d^2y}{dx^2}$	$-8\frac{dy}{dx} + 4y = 0$
	are :		
	(1) (4, 4)	(2) (4, 1)	
	(3) (1, 1)	(4) (1, 4)	
100.	The maximum value of :		
	P = x + 3y		
	Such that :		
	$2x + y \le 20$		
	$x + 2y \le 20$		
	$x \ge 0, y \ge 0$, is :		
	(1) 10	(2) 60	
	(3) 30	(4) 25	

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	Total N THIS QUESTION BOOKLET BEFORE ARE ASKED TO DO SO) UG-EE-June, 2024 SUBJECT : Statistics (4 Yes	No. of Printed Pages : 21 TIME OR UNTIL YOU SET-Y ar) 10039
Time : 1¼ Hours Roll No. (in figures)	Max. Marks : 100 (in words)	Total Questions : 100
Name	Date of Birth	
Father's Name	Mother's Name	
Date of Examination	-	
(Signature of the Car	ndidate)	Signature of the Invigilator)

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1. All questions are compulsory.

- 2. The candidates *must return* the question booklet as well as OMR Answer-Sheet to the Invigilator concerned before leaving the Examination Hall, failing which a case of use of unfair-means / mis-behaviour will be registered against him / her, in addition to lodging of an FIR with the police. Further the answer-sheet of such a candidate will not be evaluated.
- 3. Keeping in view the transparency of the examination system, carbonless OMR Sheet is provided to the candidate so that a copy of OMR Sheet may be kept by the candidate.
- 4. Question Booklet along with answer key of all the A, B, C & D code shall be got uploaded on the University Website immediately after the conduct of Entrance Examination. Candidates may raise valid objection/complaint if any, with regard to discrepancy in the question booklet/answer key within 24 hours of uploading the same on the University Website. The complaint be sent by the students to the Controller of Examinations by hand or through email. Thereafter, no complaint in any case, will be considered.
- 5. The candidate *must not* do any rough work or writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question booklet itself. Answers *must not* be ticked in the question booklet.
- 6. There will be no negative marking. Each correct answer will be awarded one full mark. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.
- 7. Use only Black or Blue Ball Point Pen of good quality in the OMR Answer-Sheet.
- 8. Before answering the questions, the candidates should ensure that they have been supplied correct and complete booklet. Complaints, if any, regarding misprinting etc. will not be entertained 30 minutes after starting of the examination.

С					
1.	For any positive integer	n, $\lim_{x \to a} \frac{x^n - a^n}{x - a}$ is	is accurity of t		
	(1) 0				
	(2) 1				
	(3) na^n				
	(4) na^{n-1}				
2.	$\lim_{x \to 0} \frac{\sin 4x}{\sin 2x}$ is equal to a				
	(1) 0	(2)) 1		
	(3) 2	(4)) 3		
3.	$\lim_{\theta \to \frac{\pi}{2}} (\sec \theta - \tan \theta) = ?$				
	(1) 0	(2)			
	(3) -1	(4)	000		
4.	If $f(x) = x \sin x$, then f	$\left(\frac{\pi}{2}\right)$ is :			
	(1) 0(2) 1				
	(3) -1				
	$(4) \frac{1}{2}$				
5.	Derivative of e^{x^2} is :				
	2				
	(1) e^{x}				
	(2) $2x$				
	(3) $2.e^{x^2}$				
	(4) $2x^{e^{x^2}}$				

1

6. A function f(x) is not continuous at x = 1 if :

- (1) $\lim_{x \to \infty} f(x) \neq f(1)$
- (2) $\lim_{x \to 1} f(x) = f(1)$
- (3) $f^1(1) \neq 0$
- (4) None of these

7. If
$$f(x) = \begin{cases} x + \lambda & ; x < 3 \\ 4 & ; x = 3 \text{ is continuous at } x = 3, \text{ then the value of } \lambda \text{ is :} \\ 3x - 5 & ; x > 3 \end{cases}$$

(1) 1
(3) -1
(4) 0

8. If f and g be two real functions continuous at a real number 'C', then which one of the following is not true ?

C

- (1) f + g is continuous at x = c
- (2) f g is continuous at x = c
- (3) f. g is continuous at x = c
- (4) $\frac{f}{g}$ is continuous at x = c, if $g(0) \neq 0$
- 9. If $x y = \pi$, then $\frac{dy}{dx} = ?$
 - (1) 0
 (2) 1

 (3) 2
 (4) 3

10. If $x = a(t - \sin t)$ and $y = a(1 - \cos t)$ then $\frac{dy}{dx} = ?$

(1) $\sec t$ (2) $\csc t$ (3) $\tan \frac{t}{2}$ (4) $\cot \frac{t}{2}$

- (2) 10! modern blood and T (1) (1) 10_{C_2} (4) 2^{10}
- $(3) 10_{C_1} + 9_{C_2}$
- 12. In an experiment of tossing three coins at a time, the probability of getting 2 heads and one tail is :

(1)	$\frac{1}{8}$		(2)	$\frac{1}{3}$
(3)	$\frac{3}{8}$	(2) PRIZZENS	(4)	$\frac{1}{2}$

C

13. If A and B are events such that P(A | B) = P(B | A), then :

- (2) $A = B^{-1}$ (1) $B \supset A$ but $A \neq B$
- (3) $A \cap B = \phi$ (4) P(B) = P(A)

14. If A and B are two independent events, then the probability of occurrence of at least one of A and B is given by :

- (2) P(A) P(B)(1) P(A) + P(B)
- $(3) \quad P(A \cup B) \tag{4} \quad P(A \cap B)$

If A and B are independent events such that $P(A) = \frac{3}{5}$ and $P(B) = \frac{1}{5}$, then $P(A \cap B)$ 15.

· · · (4)

(1) $\frac{3}{25}$ $(2) \frac{1}{5}$ (3) $\frac{3}{10}$ $(4) \frac{2}{5}$

is :

16. In context to the Bernoulli trials, which one of the following is not true ?

- (1) There should be a finite number of trials
- (2) The trials should be independent
- (3) Each trial has more than two outcomes
- (4) The probability of success remains the same in each trial
- **17.** Probability can take values :

4

(1) 0 to 2		(2) -2 to 2
(3) <i>−∞</i> to 1		(4) -1 to 1

- **18.** In case of binomial distribution, for given values of 'n' and 'p', the probability of x successes P(x = x) is given by :
 - (1) ${}^{x}c_{n} p^{x} q^{n-x}$
 - (2) ${}^{n}c_{x} p^{x}q^{n-x}$
 - (3) $p^x \cdot q^{n-x}$
 - $(4) \quad {}^{n}C_{x} p^{x} q^{n}$
- **19.** If a random variable x follows binomial distribution with 'n' number of trials and 'p' probability of success, then mean of x is :
 - (1) p (2) n(1-p)
 - (3) *npq* (4) *np*
- **20.** The mean and variance of a binomial distribution are 8 and 4 respectively, then P(x=1) is :

(1)	$\frac{1}{2^4}$			(2)	$\frac{1}{2^8}$
(3)	$\frac{1}{2^{12}}$			(4)	$\frac{1}{2^6}$

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A class of 30 boys and 15 girls is given a test in statistics. The average marks obtained 21. by boys is 15 and by girls is 6. The average of whole class is :

- (1) 10.5
- (2) 12
- (3) 12.5
- (4) 10
- 22. The sum of square of deviations for 10 observations taken from mean is 250. The value of variance is :

(1)	25		(2) 3	30
(3)	40		(4) 4	45

^{23.} The variance of 6, 8, 10, 12, 14 is :

- (1) 1
- (2) 12
- (3) 18
- (4) 8

25.

The mean of 8 numbers is 15. A new number 24 is added. The mean of nine numbers 24. is :

(1)	18	(2)	16
(3)	12	(4)	11
The	e median of the series :		

3, 18, 7, 20, 11, 12, 9, 17, 22

- (2) 12 (1) 11
 - (4) 8 (3) 10

26.	Find out the missing number of the series	s :	
	2, 6, 14, 26, 42,		611 8
	(1) 52	(2)	62
	(3) 72	(4)	60
27.	Find out the missing letters of the series		
	x xx yyx xyyyxxxx		
	(1) <i>x</i> , <i>x</i> *	(2)	у, у
	(3) <i>y</i> , <i>x</i>	(4)	х, у
28.	In a code language if 'TRAINS' is coded	l as	'RTIAS
	the same language ?		
	(1) IPTSLO	(2)	IPSTL
	(3) SIPTLO	(4)	IPTLS
29.	A person started walking towards North	. Af	ter wal

king 30 metres, he turned towards left and walked 40 metres. He then turned left and walked 30 metres. He again turned left and walked 50 metres. How far is he from his original position ?

(1)	40 metres	(2)	30 metres
(3)	20 metres	(4)	10 metres

30. If + means \times , - means +, \times means \div and \div means -, then :

 $6 - 3 + 8 \times 3 \div 4 = ?$

(1) 4 (2) 5

(3) 10 (4) 12

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- SN', how 'PISTOL' will be coded in
- - 0 0

C

31. The mean of 5 observations 1, 2, 6, x and y is 4.2, then x + y is :

 (1) 4
 (2) 8

 (3) 15
 (4) 12

32. Mean deviation for 'n' observations $x_1, x_2, ..., x_n$ from their mean X is :

- (1) $\frac{1}{n} \sum_{i=1}^{n} (X_i \overline{X})^2$ (2) $\frac{1}{n} \sum_{i=1}^{n} |X_i - \overline{X}|$ (3) $\sum_{i=1}^{n} (X_i - \overline{X})^2$ (4) $\sum_{i=1}^{n} |X_i - \overline{X}|$
- **33.** Mean of first '*n*' natural number is :

(1)	$\frac{n}{2}$	(2) $\frac{n(n+1)}{2}$	
(3)	$\frac{n+1}{2}$	(4) $\frac{n-1}{2}$	

34. The standard deviation of 10 observations is 09. If 2 is subtracted from each observation, then the new standard deviation is :

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(1) 09	(2) 11
(3) 08	(4) 07

35. Mean deviation from the median for the following data is :

3, 9, 6, 8, 4, 12, 19, 21		
(1) 2	(2) 3	
(3) 4	(4) 5	

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36. What is the harmonic mean of 5 and 2?

(1)	$\frac{20}{7}$		(2)	$\frac{30}{7}$
(3)	$\frac{10}{7}$		(4)	$\frac{40}{7}$

- 37. The sum of deviations about mean is :
 - (1) Largest
 - (2) Smallest
 - (3) Positive
 - (4) Zero
- **38.** The relationship between arithmetic mean (A. M.), geometric mean (G. M.) and harmonic mean (H. M.) can be expressed as :

C

- (1) A. M. \geq G. M. \geq H. M.
- (2) A. M. = G. M. H. M.
- (3) G. M. \geq H. M. \geq A. M.
- (4) A. M. \leq G. M. \leq H. M.
- **39.** The range is calculated as :
 - (1) The sum of all data values
 - (2) The product of all data values
 - (3) The square of the mean deviation
 - (4) The difference between the largest and smallest data values
- 40. Mode of the following data is :

3, 2, 5, 2, 3, 5, 6, 5, 6, 3, 2, 5, 1

 (1) 2
 (2) 3

 (3) 5
 (4) 6

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The additive inverse of $(2+3i)^2$ is : 41.

- (1) -5 + 12i
- (2) -9 + 12i
- (3) 5 12i
- (4) 9 12i
- **42.** Multiplicative inverse of 4 + 7i is :
 - (1) (-4-7i)
 - (2) 4 + 7i
 - $(3) -\frac{4}{65} + \frac{7}{65}i$
 - (4) $\frac{4}{65} \frac{7}{65}i$

43. How many terms are there in A. P. 20, 22, 24, 26,, 100 ?

(1)	40			(2)	41

- (4) 43 (3) 42
- The sum of the first 15 terms of the A. P. 5, 10, 15, 20, is : 44.
 - (1) 400
 - (2) 425
 - (3) 600
 - (4) 525

45. If $\begin{bmatrix} 1 & 0 \\ 3 & -4 \end{bmatrix} + \begin{bmatrix} a & 1 \\ -1 & b \end{bmatrix} = \begin{bmatrix} 2 & 1 \\ 2 & -2 \end{bmatrix}$, then value of *a* and *b* are : (1) 1, -2(2) -1, 2(3) -1, -2

(4) 1, 2

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46. Inverse matrix of
$$\begin{bmatrix} 2 & -3 \\ -4 & 2 \end{bmatrix}$$
 is :
(1) $-\frac{1}{8} \begin{bmatrix} 2 & 3 \\ 4 & 2 \end{bmatrix}$ (2) $-\frac{1}{8} \begin{bmatrix} 2 & 4 \\ 3 & 2 \end{bmatrix}$
(3) $\frac{1}{8} \begin{bmatrix} 2 & 3 \\ 4 & 2 \end{bmatrix}$ (4) $\frac{1}{8} \begin{bmatrix} 2 & 4 \\ 3 & 2 \end{bmatrix}$
47. The minor of -3 in the determinant $\begin{vmatrix} 2 & -3 & 1 \\ 4 & 0 & 5 \\ -1 & 6 & 7 \end{vmatrix}$ is :
(1) 30 (2) 33
(3) 28 (4) 32
48. Let A be a square matrix of order 3×3 , then IKAI is :
(1) 3K IAI
(2) K IAI
(3) $K^2 IAI$
(4) $K^3 IAI$
49. Matrices A and B will be inverse of each other only if :
(1) $AB = BA$
(2) $AB = BA = 0$
(3) $AB = BA = 1$
(4) $AB = I, BA = 0$
50. Which of the following is not a property of inverse of a matrix ?
(1) $(A^{-1})^{-1} = A$
(2) $(A^T)^{-1} = (A^{-1})^T$
(3) $(AB)^{-1} = A^{-1}B^{-1}$

C

(4) $Adj(A^{-1}) = (Adj A)^{-1}$

C			·	11
51.	If $x = t^2$ and $y = t^3$, then $\frac{d}{dt}$	$\frac{d^2 y}{dx^2} = ?$	$\frac{\sin x + \cos x}{1 + \sin x} dx = 7$	
	(1) $\frac{3}{4t}$	(2) \sqrt{t}	 (1) sin x + c (3) ces x + c 	
	(3) <i>t</i>	(4) $\frac{3}{2\sqrt{t}}$		
52.	The rate of change of the	area of a circle with respect	to its radius 'r' where $r =$	3 cm,
	is: (1) 2π	(2) 4π		58.
	(3) 6π	(4) 10π		
53.	• The point, at which the tar	ngent to the curve $y = \sqrt{4x} - \frac{1}{2}$	$\overline{3}$ – 1 has its slope $\frac{2}{3}$, is :	
	(1) (1, 2)	(2) (2, 1)		
	(3) (2, 3)	(4) (3, 2) (4) $f(x) = 7$		
54	4. If $f'(x) = x^2 + 5$ and $f(0)$ (1) $\frac{1}{3}x^3 + 5x - 1$	f = -1, then $f(x) = -1$		
	(2) $\frac{1}{3}x^3 + 5x + 1$			
	(3) $x^3 + 5x + 1$ (4) $x^3 + 5x - 1$			
5	5. The value of $\int_{-2}^{2} (px^3 + q)$	(x+r)dx, is:		
	(1) r			
	(2) $2r$		x≥0,) ≥ 0, is	
	(3) 3r	12) 60		
	(4) 4 <i>r</i>			
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56.	$\int \frac{\sin x + \cos x}{\sqrt{1 + \sin 2x}} dx = ?$	$\int \frac{d^2 y}{dx} = 2$	5 mi 28
	(1) $\sin x + c$	(2) $x + c$	
	(3) $\cos x + c$	(4) $x^2 + c$	
57.	Area bounded by the curve $y = \log r r$	-axis and the ordinates $x = 1$ $x = 2$	17(6) is:
	(1) $\log 4$ sq. unit	(2) $(\log 4 - 1)$ sq unit	2 15 .
703) F. 37.	(3) $(\log 4 + 1)$ sq. unit	(4) $(\log 4 - 2)$ sq. unit	
58.	The general solution of $x^2 \frac{dy}{dx} = 6$ is :		
	$(1) y = \frac{-6}{x} + c$		
	$(2) y = \frac{6}{x} + c$		63. The p
	(3) $y = \frac{12}{r} + c$ (3) (3)		
	(4) y = x + c		
-		-4 -3 -2	S4. 11 /
59.	The order and degree of differential are :	equation $\frac{d^4y}{dx^4} - 4\frac{d^3y}{dx} + 8\frac{d^2y}{dx^2} - 8$	$3\frac{dy}{dx} + 4y = 0$
	(1) (4, 4)	(2) (4, 1)	
	(3) (1, 1)	(4) (1, 4)	
60.	The maximum value of .	+52+1	
	P = x + 3y		
	Such that :	the state of the s	
	$2x + y \le 20$		
	$x + 2y \le 20$		
	$x \ge 0, y \ge 0$, is :		
	(1) 10	(2) 60	
	(3) 30	(4) 25	

61. How many subsets can be formed from the following set :

- $\{1, 2, 3, \dots, n\}$
- (1) n
- (2) n^2
- (3) 2n
- $(4) 2^n$

62. If $A = \{1, 2, 3\}, B = \{3, 4\}, C = \{4, 5, 6\}$, then $A \cup (B \cap C)$ is :

- (1) {3}
- (2) {1, 2, 3, 4}
- (3) {1, 2, 3, 5}
- (4) {1, 2, 3, 4, 5, 6}
- 63. In rule method, the null set is represented by :
 - $(1) \{ \}$
 - (2) **(**
 - (3) $\{x : x = x\}$
 - (4) $\{x : x \neq x\}$
- **64.** Let U = {1, 2, 3,, 10}, A = {1, 2, 5}, B = {6, 7}, then A \cap B' is (Where A' & B' represent compliment of A and B respectively):
 - (1) A
 - (2) B'
 - (3) A'
 - (4) B
- 65. In a group of 70 people, 37 like coffee, 52 like tea and each person likes at least one of the two drives. How many like both coffee and tea?
 - (1) 17
 - (2) 18
 - (3) 19
 - (4) 20

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66. The inequality $\frac{2}{x} < 3$ is true, when x belongs to :

(1) $\left[\frac{2}{3}, \infty\right)$ (2) $\left(-\infty, \frac{2}{3}\right]$ (3) $\left(\frac{2}{3}, \infty\right) \cup (-\infty, 0)$ (4) None of these C

67. If $A = \{1, 2, 4\}$, then the identity relation on A is :

- $(1) \{(1, 1)\}$
- $(2) \ \{(1,1) \ (1,2)\}$
- $(3) \{(2, 2), (1, 4)\}$
- $(4) \ \{(1, 1), (2, 2), (4, 4)\}\$

68. Let $A = \{x, y, z\}$ and $B = \{1, 2\}$, then the number of relations from A into B are :

- $(1) 2^5$
- $(2) 2^{6}$
- $(3) 2^3$
- $(4) 2^2$

69. The radian measure corresponding to $-47^{\circ}30'$ is :

(1)	$-\frac{15}{72}\pi$	(2)	$\frac{15}{72}\pi$
(3)	$-\frac{19}{72}\pi$	(4)	$\frac{19}{72}\pi$

- **70.** The value of $\sin\left(\frac{7\pi}{6}\right)$ is :
 - (1) $-\frac{\sqrt{3}}{2}$ (2) $\frac{1}{2}$ (3) $-\frac{1}{\sqrt{2}}$ (4) $\frac{\sqrt{3}}{2}$

1.	Which o	of the following can not	be the probability of occ	urrence of an event ?	
	(1) $\frac{2}{3}$				
	(2) $\frac{3}{2}$				
	(3) 0				
	(4) 1		al Y to sui		
2.	In an ex	periment of rolling a fa	air die and unbiased coin,	the sample space is :	
	(1) {H	1,H2,H3,H4,H5,H6}			
	(2) {T	1, T2, T3, T4, T5, T6}			
	(3) {H	1, H2, H3, T4, T5, T6}		and share water were the	
	(4) {H	1, H2, H3, H4, H5, H6,	T1, T2, T3, T4, T5, T6}		
73.	If P(A)	() = 0.37, P(B) = 0.42,	$P(A \cap B) = 0.09$, then $P(A \cap B) = 0.09$	$A \cup B$) is :	
	(1) 0.7	1	(2) 0.8		
	(3) 0.6	58	(4) 0.75		
74.	Probab	ility of occurrence of a	n impossible event is :		
	(1) 1		(2) 2		
	(3) 0	d contrate o personal?	(4) 0.5		
75.	A fam	ily has two children.	What is the probability	that both the children are b	oys,
	given t	that at least one of them	is a boy ?		
	(1) $\frac{3}{1}$				
	4			fic number of squares that	
	$(2) \frac{1}{4}$			(1) 224	
	4			(2) 204	
	(3) $\frac{1}{2}$		*		
	$(4) \frac{1}{2}$				
	3				

7

UG-EE-June, 2024/(Statistics-4 Yr.)(SET-Y)/(C) P. T. O.

С

76.	Given that	$P(A) = \frac{1}{3}, P(B) = \frac{3}{4}$	and $P(A \cup B) = \frac{11}{12}$,	then P(B/A) is
-----	------------	--	-------------------------------------	----------------

(1)	$\frac{1}{6}$	(2)	$\frac{5}{6}$
(3)	$\frac{2}{9}$	(4)	$\frac{1}{2}$

77.	If ${}^{5}P_{r} = 2.^{6}\mu$	= 2. ${}^{\circ}p_{r-1}$, then value of 'r' is :	
	(1) 1	and coin, the sample i	(2) 2
	(3) 3		(4) 4

78. In how many ways can 5 men and 4 women be seated in a row so that the women occupy the even places ?

(1) n! (2) n

C

- (1) 2880
- (2) 2860
- (3) 2800
- (4) 2820

79. The value of ${}^{n}P_{n-1}$ is :

(3) 2n! (4) 2n

80. The number of squares that can be formed on a Chessboard :

(1) 224

.

- (2) 204
- (3) 160
- (4) 64

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81. 'Page' is related to 'Book' as 'Leaf' is related to :

- (1) Root
- (2) Tree
- (3) Fruit
- (4) Forest
- 82. Newspaper : Press : : Cloth : ?

(1)	Fibre	 (2) Textile
(3)	Tailor	 (4) Mill

- In 10 years, 'A' will be twice as old as 'B' was 10 years ago. If at present 'A' is 9 years 83. older than 'B', the present age of 'B' is :
 - (1) 19 years
 - (2) 29 years
 - (3) 39 years
 - (4) 59 years
- 84. Pointing towards a person, a man said to a woman "His mother is the only daughter of your father". How is woman related to that person ?
 - (1) Daughter (2) Mother
 - (3) Sister

- (4) Wife
- **85.** Mirror image of is :
 - (1) >
 - (2)K
 - (3) K
 - (4)>

86. Calculate the simple interest of Rs. 7200 at $12\frac{3}{4}$ % per annum for 9 months :

- (1) Rs. 688.50
- (2) Rs. 670.50
- (3) Rs. 700.1
- (4) Rs. 690
- **87.** A man buys 25 chairs for Rs. 375 and sells them at profit equal to the selling price of 5 chairs. What is the selling price of one chair ?

C

- (1) Rs. 14.50 -
- (2) Rs. 15.20
- (3) Rs. 17.20
- (4) Rs. 18.75
- **88.** A man riding on a bicycle at a speed of 15 km/h crosses a bridge in 5 minute. The length of the bridge is :

(4) $2\frac{1}{2}$ km

B3 MATH reats. 'A will be Write as old as 'I' was 10 mers and

- (1) 1 km (2) $1\frac{1}{4}$ km
- (3) 2 km

89. The HCF of $\frac{9}{10}$, $\frac{12}{25}$, $\frac{18}{25}$ and $\frac{21}{40}$ is : (1) $\frac{3}{5}$ (2) $\frac{252}{5}$ (3) $\frac{3}{1400}$ (4) $\frac{52}{140}$

90. Find the missing number :



;				
91.	The primar	y data is gathered the	hrough :	
	(1) Survey	,	(2) Books	
	(3) Newsp	aper	(4) Internet	
92.	Which of the	he following is a me	easure of central tendency?	
	(1) Mean of	leviation	,	Mean
	(2) Mean			
	(3) Quartil	e deviation		
	(4) Standar	rd deviation		
93.	Pie chart re	presents the compo	nents of a factor by	
	(1) Angles	prosents are compo	nonits of a factor by .	" Innunoir
	(2) Percent	tages		
	(3) Sectors			
	(4) None o	f these		
04	What is the	main mumor of st		
94.	what is the	main purpose of sta	atistics ?	
	(1) To colle	ect data		
	(2) To anal	yse data		
	(3) To inter	rpret data		
	(4) All of t	hese		
95.	Which of th	e following is an ex	cample of qualitative data ?	
	(1) Height			
	(2) Weight		a bit following data is a	
	(3) Age		*	
	-0-			

(4) Gender

96. Which of the following is a measure of dispersion ?

- (1) Variance
- (2) Median
- (3) Mode
- (4) Mean

97. Which type of data is best represented by a histogram ?

- (1) Categorical
- (2) Discrete
- (3) Continuous
- (4) Nominal
- **98.** If a constant value 5 is subtracted from each observation of a set, then the mean of the set is :
 - (1) Increased by 5
 - (2) Decreased by 5
 - (3) Decreased by 25
 - (4) is not affected

99.	Geometric mean of	f two numbers $\frac{1}{16}$ and $\frac{4}{25}$, is :	 (2) To attrappe lister (3) To integrate data
	(1) $\frac{1}{10}$	(2) $\frac{1}{100}$	
	(3) 10	(4) 100	

100. The standard deviation of the following data is :

-1, -2, -3, -4, -5, -6, -7(1) -2 (2) 4 (3) 2 (4) -4

	I otal No.	of Printed	Pages : 21
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			SET-Y
S	UBJECT : Statistics (4 Year)	10032
The second straight second	S	r. No	·····
Time : 11/4 Hours	Max. Marks : 100	Total Q	uestions : 100
Roll No. (in figures)	(in words)		
Name	Date of Birth		
Father's Name	Mother's Name		
Date of Examination			

(Signature of the Candidate)

(Signature of the Invigilator)

CANDIDATES MUST READ THE FOLLOWING INFORMATION/INSTRUCTIONS BEFORE STARTING THE QUESTION PAPER.

1. All questions are compulsory.

- 2. The candidates *must return* the question booklet as well as OMR Answer-Sheet to the Invigilator concerned before leaving the Examination Hall, failing which a case of use of unfairmeans / mis-behaviour will be registered against him / her, in addition to lodging of an FIR with the police. Further the answer-sheet of such a candidate will not be evaluated.
- 3. Keeping in view the transparency of the examination system, carbonless OMR Sheet is provided to the candidate so that a copy of OMR Sheet may be kept by the candidate.
- 4. Question Booklet along with answer key of all the A, B, C & D code shall be got uploaded on the University Website immediately after the conduct of Entrance Examination. Candidates may raise valid objection/complaint if any, with regard to discrepancy in the question booklet/answer key within 24 hours of uploading the same on the University Website. The complaint be sent by the students to the Controller of Examinations by hand or through email. Thereafter, no complaint in any case, will be considered.
- 5. The candidate *must not* do any rough work or writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question booklet itself. Answers *must not* be ticked in the question booklet.
- 6. There will be no negative marking. Each correct answer will be awarded one full mark. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.
- 7. Use only Black or Blue Ball Point Pen of good quality in the OMR Answer-Sheet.
- 8. Before answering the questions, the candidates should ensure that they have been supplied correct and complete booklet. Complaints, if any, regarding misprinting etc. will not be entertained 30 minutes after starting of the examination.

1. 'Page' is related to 'Book' as 'Leaf' is related to :

- (1) Root
- (2) Tree
- (3) Fruit
- (4) Forest
- 2. Newspaper : Press : : Cloth : ?
 - (2) Textile (1) Fibre (4) Mill (3) Tailor
- 3. In 10 years, 'A' will be twice as old as 'B' was 10 years ago. If at present 'A' is 9 years older than 'B', the present age of 'B' is :
 - (1) 19 years
 - (2) 29 years
 - (3) 39 years
 - (4) 59 years

4. Pointing towards a person, a man said to a woman "His mother is the only daughter of your father". How is woman related to that person?

(2) Mother (1) Daughter

(4) Wife (3) Sister

- 5. Mirror image of \rightarrow is :
 - (1)~ (2) K (3) [(4) >

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6. Calculate the simple interest of Rs. 7200 at $12\frac{3}{4}$ % per annum for 9 months :

- (1) Rs. 688.50
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- (3) Rs. 700.1
- (4) Rs. 690
- 7. A man buys 25 chairs for Rs. 375 and sells them at profit equal to the selling price of 5 chairs. What is the selling price of one chair ?

D

- (1) Rs. 14.50
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- 8. A man riding on a bicycle at a speed of 15 km/h crosses a bridge in 5 minute. The length of the bridge is :

A will be twice as old as B' was 10 y

(2) $1\frac{1}{4}$ km

(4) $2\frac{1}{2}$ km

- (1) 1 km
- (3) 2 km
- 9. The HCF of $\frac{9}{10}$, $\frac{12}{25}$, $\frac{18}{25}$ and $\frac{21}{40}$ is : (1) $\frac{3}{5}$ (2) $\frac{252}{5}$ (3) $\frac{3}{1400}$ (4) $\frac{52}{140}$
- 10. Find the missing number :



D				3
11.	If $x = t^2$ and $y = t^3$, then $\frac{d^2 y}{dx^2} = ?$			
	(1) $\frac{3}{4t}$ (5)	(2) \sqrt{t}		
	(3) t_{1} = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 = 1 =	$(4) \ \frac{3}{2\sqrt{t}}$	i when bounded by the cu	
12.	The rate of change of the area of a circ	cle with respect to	b its radius 'r' where $r = 3$	cm,
	(1) 2π	(2) 4π		
	(3) 6π	(4) 10π		
13.	The point, at which the tangent to the cu	urve $y = \sqrt{4x-3}$	-1 has its slope $\frac{2}{3}$, is :	
	(1) (1, 2)	(2) (2, 1)		
	(3) (2, 3)	(4) (3, 2)	(i) y = x + C	
14.	If $f'(x) = x^2 + 5$ and $f(0) = -1$, then f	f(x) = ?		
	$(1)^{-1}\frac{1}{3}x^3 + 5x - 1$			
	- 1.3 -	•		
	(2) $-x^3 + 5x + 1$			
	(3) $x^3 + 5x + 1$			
	(4) $x^3 + 5x - 1$			
15.	The value of $\int_{1}^{2} (px^3 + ax + r)dx$, is :			
	-2			
	(1) <i>r</i>			
	(2) 2 <i>r</i>			
	(3) 3r			
	(4) 4 <i>r</i>			
UG-EI	E-June, 2024/(Statistics-4 Yr.)(SET-Y)	/(D)	P. June, 2024/Statistics	T. O.

4			D
16.	$\int \frac{\sin x + \cos x}{\sqrt{1 + \sin 2x}} dx = ?$		
	(1) $\sin x + c$	(2) $x + c$	
	(3) $\cos x + c$	(4) $x^2 + c$	
17.	Area bounded by the curve $y = \log x, x$	-axis and the ordinates x	=1, x = 2 is:
	(1) log 4 sq. unit	(2) $(\log 4 - 1)$ sq. unit	
ads E	(3) (log 4 + 1) sq. unit	(4) $(\log 4 - 2)$ sq. unit	
18.	The general solution of $x^2 \frac{dy}{dx} = 6$ is :		
	$(1) y = \frac{-6}{x} + c$		THE ROOM
	$(2) y = \frac{6}{x} + c$		
	(3) $y = \frac{12}{x} + c$ (2)		
	(4) y = x + c		
19.	The order and degree of differential	equation $\frac{d^4y}{dx^4} - 4\frac{d^3y}{dx} +$	$8\frac{d^2y}{dx^2} - 8\frac{dy}{dx} + 4y = 0$
	are :		
	(1) (4, 4)	(2) (4, 1)	
	(3) (1, 1)	(4) (1, 4)	
20.	The maximum value of :		
	P = x + 3y		
11	Such that : $2x + y \le 20$		
	$x + 2y \le 20$		
	$x \ge 0, y \ge 0$, is :		
	(1) 10	(2) 60	
	(3) 30	(4) 25	
UG-EH	E-June, 2024/(Statistics-4 Yr.)(SET-Y)/	(D)	

The mean of 5 observations 1, 2, 6, x and y is 4.2, then x + y is : 21.

- (2) 8 (1) 4 (4) 12 (3) 15
- Mean deviation for 'n' observations $x_1, x_2, ..., x_n$ from their mean \overline{X} is : 22.
 - (1) $\frac{1}{n} \sum_{i=1}^{n} (X_i \overline{X})^2$ (2) $\frac{1}{n} \sum_{i=1}^{n} |X_i - \overline{X}|$ (3) $\sum_{i=1}^{n} (X_i - \overline{X})^2$ (4) $\sum_{i=1}^{n} |X_i - \overline{X}|$
- 23. Mean of first 'n' natural number is :
 - (2) $\frac{n(n+1)}{2}$ (1) $\frac{n}{2}$ (4) $\frac{n-1}{2}$ M 12 M $0 \ge M$ (3) $\frac{n+1}{2}$

The standard deviation of 10 observations is 09. If 2 is subtracted from each 24. observation, then the new standard deviation is :

- (1) 09 (2) 11
- (3) 08 (4) 07

25. Mean deviation from the median for the following data is :

(2) 3 (1) 2(4) 5 (3) 4

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3, 9, 6, 8, 4, 12, 19, 21

26. What is the harmonic mean of 5 and 2?

1)	20 7	(2)	$\frac{30}{7}$
3)	$\frac{10}{7}$	(4)	$\frac{40}{7}$

27. The sum of deviations about mean is :

- (1) Largest
- (2) Smallest
- (3) Positive
- (4) Zero
- **28.** The relationship between arithmetic mean (A. M.), geometric mean (G. M.) and harmonic mean (H. M.) can be expressed as :

D

- (1) A. M. \geq G. M. \geq H. M.
- (2) A. M. = G. M. H. M.
- (3) G. M. \geq H. M. \geq A. M.
- (4) A. M. \leq G. M. \leq H. M.

29. The range is calculated as :

- (1) The sum of all data values
- (2) The product of all data values
- (3) The square of the mean deviation
- (4) The difference between the largest and smallest data values

30. Mode of the following data is :

3, 2, 5, 2, 3, 5, 6, 5, 6, 3, 2, 5, 1

- (1) 2 (2) 3
- (3) 5 (4) 6

D			7
		$x^n - a^n$	-36. A Checklon Final to bot com
31.	For any positive integer <i>n</i> ,	$\lim_{x \to a} \frac{1}{x-a} $ is:	
	(1) 0(2) 1		$(2) \lim_{x \to y} f(x) = f(0)$
	(3) na^n		· 0 + (0') (E)
	(4) na^{n-1}		(4) None of these
32.	$\lim_{x \to 0} \frac{\sin 4x}{\sin 2x}$ is equal to :		
	(1) 0	(2) 1	
	(3) 2	(4) 3	
33.	$\lim_{\theta \to \frac{\pi}{2}} (\sec \theta - \tan \theta) = ?$		28. If and g be two real function
	(1) 0	(2) 1	
	(3) -1	(4) ∞	
	(· -)	
34.	If $f(x) = x \sin x$, then f'	$\left(\frac{\pi}{2}\right)$ is:	
	(1) 0(2) 1		
	(3) -1		
	(4) $\frac{1}{2}$.	(2) 1	
35.	Derivative of e^{x^2} is :		
	(1) e^{x^2}		
	(2) $2x$		
	(3) $2e^{x^2}$ (4) $2x^{e^{x^2}}$		

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- **36.** A function f(x) is not continuous at x = 1 if :
 - (1) $\lim_{x \to \infty} f(x) \neq f(1)$
 - (2) $\lim_{x \to 1} f(x) = f(1)$
 - (3) $f^1(1) \neq 0$

8

(4) None of these

 $x+\lambda$; x<3**37.** If $f(x) = \begin{cases} 4 \\ \vdots \\ x = 3 \end{cases}$ is continuous at x = 3, then the value of λ is : 3x-5; -x>3 (1) 1(2) -2(3) -1(4) 0

38. If f and g be two real functions continuous at a real number 'C', then which one of the following is not true ?

(1) f + g is continuous at x = c

(2) f - g is continuous at x = c

(3) f. g is continuous at x = c

(4) $\frac{f}{g}$ is continuous at x = c, if $g(0) \neq 0$

39.	If $x - y = \pi$, then $\frac{dy}{dx} = ?$	
	(1) 0	(2) 1
	(3) 2	(4) 3

40. If $x = a(t - \sin t)$ and $y = a(1 - \cos t)$ then $\frac{dy}{dx} = ?$

(1) sec t(2) cosec t

(4) $\cot \frac{t}{2}$ (3) $\tan \frac{1}{2}$
41.	The primary	data is gathered	through :		

- (1) Survey (2) Books
- (3) Newspaper (4) Internet

42. Which of the following is a measure of central tendency ?

- (1) Mean deviation
- (2) Mean
- (3) Quartile deviation
- (4) Standard deviation

43. Pie chart represents the components of a factor by :

- (1) Angles
- (2) Percentages
- (3) Sectors
- (4) None of these

44. What is the main purpose of statistics ?

- (1) To collect data.
- (2) To analyse data
- (3) To interpret data
- (4) All of these
- 45. Which of the following is an example of qualitative data?

1 (2) 4

- (1) Height
- (2) Weight
- (3) Age
- (4) Gender

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P. T. O.

46. Which of the following is a measure of dispersion ?

- (1) Variance
- (2) Median
- (3) Mode
- (4) Mean

47. Which type of data is best represented by a histogram ?

- (1) Categorical
- (2) Discrete
- (3) Continuous
- (4) Nominal
- **48.** If a constant value 5 is subtracted from each observation of a set, then the mean of the set is :

D

- (1) Increased by 5
- (2) Decreased by 5
- (3) Decreased by 25
- (4) is not affected

9.	Geometric mea	in of two	numbers	$\frac{1}{16}$ and	$\frac{4}{25}$, is :
	(1) $\frac{1}{10}$				(2)	$\frac{1}{100}$
	(3) 10				(4)	100

50. The standard deviation of the following data is :

-1, -2, -3, -4, -5, -6, -7(1) -2 (2) 4 (3) 2 (4) -4

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- 51. A class of 30 boys and 15 girls is given a test in statistics. The average marks obtained by boys is 15 and by girls is 6. The average of whole class is :
 - (1) 10.5
 - (2) 12
 - (3) 12.5
 - (4) 10
- 52. The sum of square of deviations for 10 observations taken from mean is 250. The value of variance is :

(1)	25		(2) 30
(3)	40		(4) 45

- **53.** The variance of 6, 8, 10, 12, 14 is :
 - (1) 1
 - (2) 12
 - (3) 18
 - (4) 8
- 54. The mean of 8 numbers is 15. A new number 24 is added. The mean of nine numbers is :
 - (1) 18 (2) 16
 - (3) 12 (4) 11
- 55. The median of the series :
 - 3, 18, 7, 20, 11, 12, 9, 17, 22
 - (1) 11 (2) 12
 - (3) 10 (4) 8

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56.	Find	out	the	missing	number	of	the	series	•
		ULLE	1110	A A B A L A L A A B ANN	TYPETTEC CA	0.		DA	

2, 6, 14, 26, 42,

(1)	52	(2) 62
(3)	72	(4) 60

57. Find out the missing letters of the series :

x *xx yyx* *xyyyxxxx*

(1)	<i>x</i> , <i>x</i>		(2)	у, у
(3)	<i>y</i> , <i>x</i> [·]		(4)	х, у

58. In a code language if 'TRAINS' is coded as 'RTIASN', how 'PISTOL' will be coded in the same language ?

(1)	IPTSLO	(2)	IPSTLO
(3)	SIPTLO	(4)	IPTLSO

59. A person started walking towards North. After walking 30 metres, he turned towards left and walked 40 metres. He then turned left and walked 30 metres. He again turned left and walked 50 metres. How far is he from his original position ?

(1)	40 metres		(2)	30 metres
(3)	20 metres		(4)	10 metres

60. If + means \times , - means +, \times means \div and \div means -, then :

$6 - 3 + 8 \times 3 \div 4 = ?$		
(1) 4		(2) 5

(3) 10 (4) 12

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D

61. Which of the following can not be the probability of occurrence of an event ?

2 3 (1) (2) $\frac{3}{2}$ (3) 0 (4) 1

In an experiment of rolling a fair die and unbiased coin, the sample space is : 62.

- (1) {H1, H2, H3, H4, H5, H6}
- (2) $\{T1, T2, T3, T4, T5, T6\}$
- (3) {H1, H2, H3, T4, T5, T6}
- (4) {H1, H2, H3, H4, H5, H6, T1, T2, T3, T4, T5, T6}

63. If P(A) = 0.37, P(B) = 0.42, $P(A \cap B) = 0.09$, then $P(A \cup B)$ is :

(1)	0.7	(2)	0.8
(3)	0.68	(4)	0.75

Probability of occurrence of an impossible event is : 64.

(1) 1		(2)	2
(3) 0		(4)	0.5

- A family has two children. What is the probability that both the children are boys, 65. given that at least one of them is a boy ?
 - (1) $\frac{3}{4}$ (2) (3) $(4) \cdot \frac{1}{3}$

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66.	Given that	$P(A) = \frac{1}{3}, P(B) = \frac{3}{4}$	and $P(A \cup B) = \frac{11}{12}$,	, then P(B/A) is :
	(1) $\frac{1}{6}$		(2) $\frac{5}{6}$	

- (3) $\frac{2}{9}$ (4) $\frac{1}{2}$
- 67. If ${}^{5}P_{r} = 2$. ${}^{6}p_{r-1}$, then value of 'r' is : (1) 1 (2) 2
- **68.** In how many ways can 5 men and 4 women be seated in a row so that the women occupy the even places ?

(4) 4

(1) 2880

(3) 3

- (2) 2860
- (3) 2800
- (4) 2820
- 69. The value of ${}^{n}P_{n-1}$ is :
 - (1) n! (2) n(3) 2n! (4) 2n
- **70.** The number of squares that can be formed on a Chessboard :
 - (1) 224
 - (2) 204
 - (3) 160
 - (4) 64

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D

71. The number of ways 10 digits numbers can be written using the digits 1 and 2 :

(1) 10_{C_2} (2) 10! (3) $10_{C_1} + 9_{C_2}$ (4) 2^{10}

72. In an experiment of tossing three coins at a time, the probability of getting 2 heads and one tail is :

(1)	$\frac{1}{8}$	 (2) $\frac{1}{3}$
(3)	$\frac{3}{8}$	 (4) $\frac{1}{2}$

73. If A and B are events such that P(A | B) = P(B | A), then :

(1) $B \supset A$ but $A \neq B$	(2) $A = B$
(3) $A \cap B = \phi$	(4) P(B) = P(A)

74. If A and B are two independent events, then the probability of occurrence of at least one of A and B is given by :

(1) P(A) + P(B) (2) P(A) - P(B)

 $(3) P(A \cup B) \qquad (4) P(A \cap B)$

75. If A and B are independent events such that $P(A) = \frac{3}{5}$ and $P(B) = \frac{1}{5}$, then $P(A \cap B)$

(1) $\frac{3}{25}$ (2) $\frac{4}{5}$

is :

(3) $\frac{3}{10}$ (4) $\frac{2}{5}$

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- (1) There should be a finite number of trials
- (2) The trials should be independent
- (3) Each trial has more than two outcomes
 - (4) The probability of success remains the same in each trial
 - 77. Probability can take values :

(1) 0 to 2			(2)	-2 to 2
(3) -∞ to 1	~		(4)	-1 to 1

- **78.** In case of binomial distribution, for given values of 'n' and 'p', the probability of x successes P(x = x) is given by :
 - (1) ${}^{x}c_{n} p^{x} q^{n-x}$
 - $(2) \quad {}^{n}c_{x} p^{x}q^{n-x}$
 - (3) $p^{x}.q^{n-x}$
 - $(4) \ ^{n}c_{x} p^{x} q^{n}$
- **79.** If a random variable x follows binomial distribution with 'n' number of trials and 'p' probability of success, then mean of x is :
 - (1) p (2) n(1-p)
 - $(3) npq \qquad (4) np$
- 80. The mean and variance of a binomial distribution are 8 and 4 respectively, then P(x=1) is :

(1)	$\frac{1}{2^4}$	(2)	$\frac{1}{2^8}$
(3)	$\frac{1}{2^{12}}$	(4)	$\frac{1}{2^{6}}$

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81.	How	many	subsets	can	be	formed	from	the	following set		
-----	-----	------	---------	-----	----	--------	------	-----	---------------	--	--

- $\{1, 2, 3, \dots, n\}$
- (1) *n*
- (2) n^2
- (3) 2*n*
- $(4) 2^n$

82. If $A = \{1, 2, 3\}, B = \{3, 4\}, C = \{4, 5, 6\}$, then $A \cup (B \cap C)$ is :

- (1) {3}
- $(2) \{1, 2, 3, 4\}$
- $(3) \{1, 2, 3, 5\}$
- $(4) \ \{1, 2, 3, 4, 5, 6\}$

83. In rule method, the null set is represented by :

- (1) { }
- (2) **ø**
- (3) $\{x : x = x\}$
- (4) $\{x : x \neq x\}$

84. Let $U = \{1, 2, 3, ..., 10\}$, $A = \{1, 2, 5\}$, $B = \{6, 7\}$, then $A \cap B'$ is (Where A' & B' represent compliment of A and B respectively) :

- (1) A
- (2) B^{*}
- (3) A'
- (4) B
- 85. In a group of 70 people, 37 like coffee, 52 like tea and each person likes at least one of the two drives. How many like both coffee and tea?
 - (1) 17
 - (2) 18
 - (3) 19
 - (4) 20

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86. The inequality $\frac{2}{x} < 3$ is true, when x belongs to :

(1) $\left[\frac{2}{3}, \infty\right)$ (2) $\left(-\infty, \frac{2}{3}\right]$ (3) $\left(\frac{2}{3}, \infty\right) \cup (-\infty, 0)$ (4) None of these

87. If $A = \{1, 2, 4\}$, then the identity relation on A is :

- (1) $\{(1, 1)\}$ (2) $\{(1, 1) (1, 2)\}$ (3) $\{(2, 2), (1, 4)\}$
- $(4) \ \{(1, 1), (2, 2), (4, 4)\}\$

88. Let $A = \{x, y, z\}$ and $B = \{1, 2\}$, then the number of relations from A into B are :

D

- $(1) 2^5$
- $(2) 2^6$
- $(3) 2^3$
- $(4) 2^2$

89. The radian measure corresponding to $-47^{\circ}30'$ is :

$(1) -\frac{15}{72}\pi$	(2)	$\frac{15}{72}\pi$
(3) $-\frac{19}{72}\pi$.(4)	$\frac{19}{72}\pi$

90. The value of $\sin\left(\frac{7\pi}{6}\right)$ is :

(1) $-\frac{\sqrt{3}}{2}$ (2) $\frac{1}{2}$ (3) $-\frac{1}{\sqrt{2}}$ (4) $\frac{\sqrt{3}}{2}$

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91. The additive inverse of $(2+3i)^2$ is : (1) - 5 + 12i

- (2) -9 + 12i
- (3) 5 12i
- (4) 9 12i
- **92.** Multiplicative inverse of 4 + 7i is :
 - (1) (-4-7i)(2) - 4 + 7i $(3) -\frac{4}{65} + \frac{7}{65}i$ (4) $\frac{4}{65} - \frac{7}{65}i$

How many terms are there in A. P. 20, 22, 24, 26,, 100? 93.

(1) 40 (2) 41 (3) 42

The sum of the first 15 terms of the A. P. 5, 10, 15, 20, is : 94.

(4) 43

- (1) 400
- (2) 425
- (3) 600
- (4) 525

95. If $\begin{bmatrix} 1 & 0 \\ 3 & -4 \end{bmatrix} + \begin{bmatrix} a & 1 \\ -1 & b \end{bmatrix} = \begin{bmatrix} 2 & 1 \\ 2 & -2 \end{bmatrix}$, then value of a and b are :

- (1) 1, -2
- (2) -1, 2
- (3) -1, -2
- (4) 1, 2

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96. Inverse matrix of $\begin{bmatrix} 2 & -3 \\ -4 & 2 \end{bmatrix}$ is : $(2) \quad -\frac{1}{8} \begin{bmatrix} 2 & 4 \\ 3 & 2 \end{bmatrix}$ $(1) \quad -\frac{1}{8} \begin{bmatrix} 2 & 3 \\ 4 & 2 \end{bmatrix}$ $(3) \quad \frac{1}{8} \begin{bmatrix} 2 & 3 \\ 4 & 2 \end{bmatrix}$ $(4) \quad \frac{1}{8} \begin{bmatrix} 2 & 4 \\ 3 & 2 \end{bmatrix}$ 2 -3 1 **97.** The minor of -3 in the determinant 4 0 5 is : -16 7 (1) 30 (2) 33 (3) 28 (4) 32 98. Let A be a square matrix of order 3×3 , then |KA| is : (1) 3K IAI (2) K |A| (3) $K^2 |A|$ (4) $K^{3}|A|$

D

99. Matrices A and B will be inverse of each other only if :

- (1) AB = BA
- (2) AB = BA = 0
- (3) AB = BA = I
- (4) AB = I, BA = 0

100. Which of the following is not a property of inverse of a matrix ?

- (1) $(A^{-1})^{-1} = A$
- (2) $(A^T)^{-1} = (A^{-1})^T$
- (3) $(AB)^{-1} = A^{-1}B^{-1}$
- (4) $Adj(A^{-1}) = (Adj A)^{-1}$

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Answer key	Answer keys of Bachelor of Science (STATISTICS) 4-Years entrance exam dated 21.06.2024								
Q. NO.	A	В	С	D					
51	4	1	1	2					
52	3	2	3	1					
53	4	3	4	4					
54	3	4	1	2					
55	1	4	4	2					
56	3	1	2	2					
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58	2	2	1	1					
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62	2	3	2	4					
62	2	1	<u> </u>	1					
64	5	2	1	3					
64	4	Δ	<u>1</u>	3					
65	4	4	2	4					
66	1		3	4					
67	3		4	3					
68	2	3	2	1					
69	1	2	3	1					
70	3	4	1	2					
71	4	3	2	4					
72	2	4	4	3					
73	3	2	1	4					
74	1	3	3	3					
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