

This booklet consists of 100 questions and 12 printed pages.

RGUCET/2023/PG/36

Series

NIL

RGUCET 2023
MASTER OF SCIENCE IN STATISTICS

Full Marks: 100

Time: 2 Hours

Roll No.

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Day and Date of Examination :

Signature of Invigilator(s) :

Signature of Candidate :

General Instructions:

PLEASE READ ALL THE INSTRUCTIONS CAREFULLY BEFORE MAKING ANY ENTRY.

1. DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE TOLD TO DO SO.
2. Candidate must write his/her Roll Number on the space provided.
3. This Test Booklet contains 100 Multiple Choice Questions (MCQs). Each question carries 1 mark. There shall be negative marking of 0.25 against each wrong attempt.
4. Please check the Test Booklet to verify that the total pages and total number of questions contained in the test booklet are the same as those printed on the top of the first page. Also check whether the questions are in sequential order or not.
5. Candidates are not permitted to enter into the examination hall 15 minutes after the commencement of the entrance test or leave the examination hall before 30 minutes of end of examination.
6. Making any identification mark in the OMR Answer Sheet or writing Roll Number anywhere other than the specified places will lead to disqualification of the candidate.
7. Candidates shall maintain silence inside and outside the examination hall. If candidate(s) is/are found violating the instructions mentioned herein or announced in the examination hall, they will be summarily disqualified from the entrance test.
8. In case of any dispute, the decision of the Entrance Test Committee, RGU shall be final and binding.
9. The OMR Answer Sheet consists of two copies, the Original copy and the Student's copy.

1	Choose the correct spelling from the following options.				d	Appointmen t
	a) Appointtment	b) Apointment	c) Appointmant	d) Appointment		
2	Choose the incorrect pairs from the following options.				d	mouse- mouses
	a) knife-knives	b) woman-women	c) deer-deer	d) mouse-mouses		
3	Yesterday was the _____ day of our trip.				c	worst
	a) most worse	b) more worse	c) worst	d) worse		
4	Choose the option that is nearest in the meaning to 'gigantic'.				d	very big
	a) very small	b) very good	c) very bad	d) very big		
5	Choose the opposite of 'literate' from the following options.				a	illiterate
	a) illiterate	b) unliterate	c) deliterate	d) misliterate		
6	Jone can't drive _____ he has a license.				b	unless
	a) if	b) unless	c) although	d) yet		
7	Choose the one, which can be substituted for the given phrase "Ready to believe anything"				a	Credulous
	a) Credulous	b) Incredulous	c) incredible	d) Credible		
8	Choose the one, which can be substituted for the given sentence "List of issues to be discussed at a meeting"				c	Agenda
	a) Time-Table	b) Plan	c) Agenda	d) Schedule		
9	Which is the Synonyms of word 'DECEITFUL'?				b	Fraudulent
	a) Fair	b) Fraudulent	c) Honest	d) None of these		

10	Select the word which match same as the group of words given 'a family of young animals'				b	brood
	a) nest	b) brood	c) offspring	d) clutch		
11	What is the major source of fresh water in India?				c	ground water
	a) ocean water	b) river water	c) pond water	d) ground water		
12	Which classical dance form is named after the village it originated from?				a	Kuchipudi
	a) Kuchipudi	b) Kathakali	c) Bharatnatyam	d) Mohiniattam		
13	Which bacteria is responsible for the formation of curd?				b	lactobacillus acidophilus
	a) vibrio cholera	b) lactobacillus acidophilus	c) streptococcus thermophilus	d) bacillus radicola		
14	Where is the famous Meenakshi Temple located?				c	Madurai
	a) Ujjain	b) Varanasi	c) Madurai	d) Rameswaram		
15	The highest peak of the Himalaya is				b	Mt. Everest
	a) K2	b) Mt. Everest	c) Nanga Parbat	d) Namcha Barwa		
16	Narmada and Tapti rivers drain in				a	Arabian Sea
	a) Arabian Sea	b) Bay of Bengal	c) Indian Ocean	d) Black Sea		
17	The State Animal of Arunachal Pradesh is				d	Mithun
	a) Sangai	b) Rhinoceros	c) Red panda	d) Mithun		
18	The first Asian Games was held in 1951 in which country?				a	India
	a) India	b) China	c) Japan	d) Philippines		

19	Silk is obtained from				d	cocoon
	a) adult insect	b) pupa	c) egg	d) cocoon		
20	The most important live stocks of India are				c	cattle & buffaloes
	a) cattle & dog	b) dog & cat	c) cattle & buffaloes	d) elephant & cattle		
21	Which bridge connect Dibrugarh in Assam and Pasighat in Arunachal Pradesh?				c	Bogibeel
	a) Naini	b) Coronation	c) Bogibeel	d) Pamban		
22	As the Chief Minister of which North Eastern state was Conrad Sangma sworn-in?				c	Meghalaya
	a) Assam	b) Odisha	c) Meghalaya	d) Nagaland		
23	Name the person who climbed Mt. Everest for the record 27 th time, breaking his own record.				b	Kami Rita Sherpa
	a) Pasang Dawa Sherpa	b) Kami Rita Sherpa	c) Apa Sherpa	d) Tenzing Norgay		
24	In the year 2023, total how many persons have been honoured with Padma Awards?				b	106 persons
	a) 128 persons	b) 106 persons	c) 39 persons	d) 6 persons		
25	In 1 st December 2022, which country took over the G20 Presidency?				a	India
	a) India	b) Germany	c) Indonesia	d) Pakistan		

Domain

26	The number of possible samples of size n out of N population units without replacement is				a	$\binom{N}{n}$
	a) $\binom{N}{n}$	b) $\binom{n}{N}$	c) n^2	d) $n!$		
27	If each and every unit of a population has an equal chance of being included in the sample, it is known as:				d	unrestricted sampling
	a) restricted sampling	b) purposive sampling	c) subjective sampling	d) unrestricted sampling		
28	The selected items of a sample resulted in the same value pertaining to a character. The variance of the sample is:				b	0
	a) 1	b) 0	c) positive infinity	d) not determinable		
29	If X_1, X_2, \dots, X_n is a random sample from a population $N(0, \sigma^2)$, the sufficient statistic for σ^2 is:				b	$\sum X_i^2$
	a) $\sum X_i$	b) $\sum X_i^2$	c) $(\sum X_i)^2$	d) $(\sum X_i)^3$		
30	If the expected value of an estimator is not equal to its parametric function $\tau(\theta)$, it is said to be a:				b	biased estimator
	a) unbiased estimator	b) biased estimator	c) consistent estimator	d) All of the above		
31	If X_1, X_2, \dots, X_n is a random sample from a population $N(0, \sigma^2)$, the estimator $\frac{\sum X_i}{n}$ is:				d	All of the above
	a) a BAN estimator for μ	b) a consistent estimator for μ	c) an unbiased estimator of μ	d) All of the above		
32	If X_1, X_2, \dots, X_n is a random sample from a population $N(0, \sigma^2)$, the maximum likelihood estimate of σ is:				c	$\sqrt{\frac{\sum X_i^2}{n}}$
	a) $\frac{\sum X_i}{n}$	b) $\frac{\sum X_i^2}{n}$	c) $\sqrt{\frac{\sum X_i^2}{n}}$	d) $\sqrt{\sum X_i^2 / n}$		
33	If X is a random variable and a is a constant. The correct expectation from the list is				d	$E(aX)=aE(X)$
	a) $E(aX)=X$	b) $E(aX)=a$	c) $E(aX)=aX$	d) $E(aX)=aE(X)$		

34	If X is a random variable, $E(e^{tX})$ is known as:				b	moment generating function
	a) characteristic function	b) moment-generating function	c) probability generating function	d) probability mass function		
35	If X is a random variable with mean μ , the $E(X - \mu)^r$ is called:				c	r^{th} central moment
	a) variance	b) r^{th} raw moment	c) r^{th} central moment	d) second central moment		
36	If X and Y are two random variables such that their expectations exist and $P(x \leq y) = 1$, then				a	$E(X) \leq E(y)$
	a) $E(X) \leq E(y)$	b) $E(X) \geq E(y)$	c) $E(X) < E(y)$	d) $E(X) = E(y)$		
37	1. The expectation of a random variable X is given by:				a	$\sum xf(x), \int xf(x)dx$
	2. a) $\sum xf(x), \int xf(x)dx$	b) $\sum xf(x), \int x^2f(x)dx$	c) $\sum x^2f(x), \int xf(x)dx$	d) $\sum x^2f(x), \int x^2f(x)dx$		
38	3. The variance of a random variable X is given by				b	$E(X^2) - [E(X)]^2$
	4. a) $E(X^2)$	b) $E(X^2) - [E(X)]^2$	c) $E(X)$	d) $[E(X)]^2$		
39	5. The number of students in a class is an example of				b	discrete variable
	6. a) continuous variable	b) discrete variable	c) definite variable	d) qualitative variable		
40	The term regression was introduced by:				b	Sir Francis Galton
	a) R.A. Fisher	b) Sir Francis Galton	c) Karl Pearson	d) Spearman		
41	If X and Y are two variates, there can be at most:				b	two regression line
	a) one regression line	b) two regression line	c) three regression line	d) four regression line		
42	If in a regression equation $Y = \beta_0 + \beta_1X + \varepsilon$, $\varepsilon \sim iid N(0, \sigma^2)$ the					

	variance of $\hat{\beta}_1$ is:					
	a) $\sigma^2 / (n - 2)$	b) σ^2 / s_{xx}	c) σ^2 / n	d) σ^2	b	σ^2 / s_{xx}
43	The unit of the correlation coefficient is					
	a) kg/cc	b) cm	c) non-exist	d) cm^2	c	non-exist
44	The range of multiple correlation coefficients is:					
	a) 0 to 1	b) 0 to ∞	c) -1 to 1	d) $-\infty$ to ∞	a	0 to 1
45	The significance of a slope coefficient for a simple linear regression can be tested by					
	a) Chi-square test	b) t-test	c) z-test	d) KS test	b	t-test
46	If $\text{Var}(X+Y)=\text{Var}(X-Y)$, then the correlation between X and Y is equal to:					
	a) 1	b) 1/2	c) 1/4	d) 0	d	0
47	The measure of association usually deals with:					
	a) attributes	b) quantitative factors	c) variables	d) number	a	attributes
48	The total N of all the frequencies is known as the class of:					
	a) zero order	b) first order	c) second order	d) third order	a	zero order
49	With two attributes one can have in all:					
	a) two class frequencies	b) four class frequencies	c) eight class frequencies	d) nine class frequencies	d	nine class frequencies
50	With three attributes A, B, and C, the frequency (β) in terms of positive attribute frequencies is:					
	a) $N-(A)-(B)-(C)$	b) $N-(B)$	c) $N-(A)-(C)$	d) $N-(AC)$	b	$N-(B)$
51	If for two attributes A and B, the relation $(\alpha\beta) = \frac{(\alpha)(\beta)}{N}$ holds, the attributes (α) and (β) are:					
	a) positively associated	b) negatively associated	c) independent	d) no conclusion	c	independent

52	If class frequencies between two attributes A and B hold the inequality, $(AB)(ab) > (aB)(Ab)$, then the value of Q is:				d	any value between 0 and 1
	a) 1	b) -1	c) 0	d) any value between 0 and 1		
53	If all A's are B's, the coefficient of colligation is equal to:				c	1
	a) 0	b) -1	c) 1	d) infinity		
54	Out of 200 persons in a locality, 100 were vaccinated to prevent TB. Out of 50 patients, 10 were vaccinated. The coefficient of association Q between vaccination and prevention from TB is:				a	5/7
	a) 5/7	b) 5/11	c) -5/11	d) -5/7		
55	The numerical value of the coefficient of contingency is:				d	All of the above
	a) lies between 0 and 1	b) never attain the value 1	c) can never be negative	d) All of the above		
56	Interpolation is a technique for				a	obtaining most likely missing links
	a) obtaining most likely missing links	b) finding the relationship between two variables	c) comparing the two series	d) estimation of parameter		
57	Interpolation means estimating a value that lies:				b	within the given range of arguments
	a) outside the given range of arguments	b) within the given range of arguments	c) outside the range of the dependent variable	d) all		
58	Interpolation and extrapolation are the same in the series that				c	both determine most likely estimate
	a) both results in the same value	b) both are complementary to each other	c) both determine the most likely estimate	d) both are supplementary to each other		
59	The graphic method of interpolation is:				d	All of the above
	a) simple	b) non-algebraical	c) not fully reliable	d) All of the above		

60	The most suitable formula for estimating the value lying in the central part of a series is:				b	Stirling's formula
	a) Lagrange's formula	b) Stirling's formula	c) Newton-Gauss forwarded formula	d) Newton-Gauss backward formula		
61	What percentage of values lies between 5 th and 25 th percentiles?				b	20%
	a) 15%	b) 20%	c) 25%	d) 30%		
62	The correct relationship between A.M., G.M., and H.M., is:				d	$A.M. \geq G.M. \geq H.M.$
	a) $A.M.=G.M.=H.M$	b) $G.M. \geq A.M. \geq H.M.$	c) $H.M. \geq G.M. \geq A.M.$	d) $A.M. \geq G.M. \geq H.M.$		
63	A distribution with kurtosis greater than 3 is known as:				c	leptokurtic
	a) platykurtic	b) mesokurtic	c) leptokurtic	d) excess kurtosis		
64	In symmetrical distribution if $Q_1 = 4$ and $Q_3 = 12$, then mean or Q_2 is				c	8
	a) 4	b) 6	c) 8	d) 12		
65	The coefficient of skewness of a series A is 0.15 and that of series B is – 2. Which of the two series is less skew?				a	series A
	a) series A	b) series B	c) same	d) no decision		
66	An event in the probability that will never be happened is called as -				d	impossible event
	a) unsure event	b) sure event	c) possible event	d) impossible event		
67	Suppose a number x is chosen from the numbers -2, -1, 0, 1, 2. What will be the probability of $x^2 > 0$?				d	4/5
	a) 1/5	b) 2/5	c) 3/5	d) 4/5		
68	What is the probability of drawing an ace from a pack of 52 cards?				c	1/13
	a) 1/4	b) 1/52	c) 1/13	d) 1/32		

69	The mean and variance of a binomial distribution are 8 and 4 respectively. Then $P(X=1)$ is equal to				a)	$\frac{1}{2^{12}}$
	a) $\frac{1}{2^{12}}$	b) $\frac{1}{2^4}$	c) $\frac{1}{2^6}$	d) $\frac{1}{2^8}$		
70	In hypergeometric distribution, H. G. (N, k, n) if $N \rightarrow \infty, \frac{k}{N} \rightarrow p$, the hypergeometric distribution reduces to				a)	binomial distribution
	a) binomial distribution	b) geometric distribution	c) normal distribution	d) Bernoulli distribution		
71	Laplace distribution curve with regard to peakedness is				a)	more peaked than normal
	a) more peaked than normal	b) less peaked than normal	c) adequately peaked	d) depends on all the variables of its parameters		
72	In estimating the parameters of a linear function, most commonly used method of estimation is:				b)	least square method
	a) maximum likelihood estimation	b) least square method	c) method of minimum Chi-square	d) method of moments		
73	The minimum variance approach was put forth by whom and in which year				b)	Markov in 1900
	a) Gauss in 1809	b) Markov in 1900	c) Fisher in 1920	d) all the above		
74	When an investigator wants a sample containing m units which possess a rare attributes, the appropriate sampling procedure is				c)	inverse sampling
	a) srswor	b) stratified sampling	c) inverse sampling	d) all the above		
75	If larger units have greater probability of their inclusion in the sample, it is known as				b)	selection with probability proportional to
	a) selection with replacement	b) selection with probability proportional to	c) selection with constant probability	d) probability selection		

		size				size
76	How many types of optimum allocation are in common used				c)	Three
	a) one	b) two	c) three	d) four		
77	If the number of population units N is an integral multiple of sampling size n, the systematic sampling is called				a)	linear systematic sampling
	a) linear systematic sampling	b) circular systematic sampling	c) random systematic sampling	d) all the above		
78	The magnitude of the standard error of an estimate is an index of its				b)	Precision
	a) accuracy	b) precision	c) efficiency	d) all the above		
79	Vital statistics is greatly utilised by				d)	all the above
	a) actuaries	b) planners	c) social reformers	d) all the above		
80	In India, the collection of vital statistics started for the first time in				b)	1886
	a) 720	b) 1886	c) 1969	d) 1946		
81	Registration of vital statistics is organised at apex by				b)	Registrar General
	a) Director General	b) Registrar General	c) Census Commissioner	d) all the above		
82	Student's t-distribution curve is symmetrical about mean, it means that				a)	odd order moments are
	a) odd order moments	b) even order moments are zero	c) both (a) and (b)	d) none of (a) and (b)		

	nts are zero				zero
83	If $X \sim N(0,1)$ and $Y \sim \chi_n^2$ the distribution of the variate $\frac{X}{\sqrt{Y/n}}$ follows				
	a) Cauch y's distrib ution	b) Fisher's t- distribution	c) Student's t- distribution	d) none of the above	b) Fisher's t- distribution
84	Chi-square distribution curve in respect of symmetry is				
	a) negati vely skew	b) symmetrical	c) positively skew	d) any of the above	c) positively skew
85	F-distribution curve in respect of tails is				
	a) negati ve skew	b) positive skew	c) symmetrical	d) any of the above	b) positive skew
86	Area of the critical region depends on				
	a) size of type I error	b) size of type II error	c) value of statistic	d) number of observations	a) size of type I error
87	Degrees of freedom is related to				
	a) no. of observati on	b) hypothesis under test	c) no. of independent observations in a set	d) none of the above	c) no. of independent observations in a set
88	Paired t-test is applicable when the observations in the two sample are				
	a) paired	b) correlated	c) equal in number	d) all the above	d) all the above
89	The hypothesis that the population variance has a specified value can be tested by				

	a) F-test	b) Z-test	c) χ^2 -test	d) none of the above	c)	χ^2 -test
90	Analysis of variance utilises				a)	F-test
	a) F-test	b) χ^2 -test	c) Z-test	d) t-test		
91	A time series consists of				c)	four components
	a) two components	b) three components	c) four components	d) five components		
92	Moving average method suffers from				d)	all the above
	a) the loss of information	b) the element of subjectivity	c) the decision about the number of years in groups	d) all the above		
93	Ratio to trend method for seasonal indices provides good results if				c)	the periods are of short duration
	a) the periods are of long duration	b) the periods are given six monthly	c) the periods are of short duration	d) all the above situations		
94	Each contrast among k treatments has				b)	one d.f.
	a) $(k-1)$ d.f.	b) one d.f.	c) k d.f.	d) none of the above		
95	Completely randomised designs are mostly used in				c)	pot experiments
	a) field experiments	b) experiments on animals	c) pot experiments	d) all the above		
96	Unweighted price index formula is				b)	seldom used
	a) most frequently used	b) seldom used	c) the best	d) all the above		

97	Laspeyre's index number possess				c)	upward bias
	a) downward bias	b) no bias	c) upward bias	d) none of the above		
98	Paasche's index number was invented in the year				c)	1874
	a) 1871	b) 1901	c) 1874	d) 1918		
99	Drobish-Bowley gave the formula for price index in				b)	1901
	a) 1910	b) 1901	c) 1801	d) 1871		
100	Deflation of index number is meant for calculating				d)	all the above
	a) real wages	b) money income index number	c) real income index number	d) all the above		

SPACE FOR ROUGH WORK