COMMON P.G. ENTRANCE TEST – 2021 (CPET-2021)

Test Booklet No.:

HIGHER EDUCATION DEPARTMENT, GOVT. OF ODISHA 175084 TEST BOOKLET

Subject Code: 44 Entrance Subject: STATISTICS

Time Allowed: 90 Minutes

Full Marks: 70

INSTRUCTIONS TO CANDIDATES

- 1. Please do not open this Question Booklet until asked to do so.
- 2. Check the completeness of the Question Booklet immediately after opening.
- 3. Enter your Hall Ticket No. on the Test Booklet in the box provided alongside. Do not write anything else on the Test Booklet.
- 4. Fill up & darken Hall Ticket No. & Test Booklet No. in the Answer Sheet as well as fill up Test Booklet Serial No. & Answer Sheet Serial No. in the Attendance Sheet carefully. Wrongly filled up Answer Shee are liable for rejection.
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- 5. Each question has four answer options marked (A), (B), (C) & (D).
- **6.** Answers are to be marked on the Answer Sheet, which is provided separately.
- 7. Choose the most appropriate answer option and darken the oval completely, corresponding to (A), (B), (C) or (D) against the relevant question number.
- 8. Use only Blue/Black Ball Point Pen to darken the oval for answering.
- 9. Please do not darken more than one oval against any question, as scanner will read such markings as wrong answer.
- 10. Each question carries equal marks. There will be no negative marking for wrong answer.
- 11. Electronic items such as calculator, mobile, etc., are not permitted inside the examination hall.
- 12. Don't leave the examination hall until the test is over and permitted by the invigilator.
- 13. The candidate is required to handover the original OMR sheet to the invigilator and take the question booklet along with the candidate's copy of OMR sheet after completion of the test.
- 14. Sheet for rough work is appended in the Test Booklet at the end.

STATISTICS

1. If A, B and C be any three events on a sample space S with $P(A) = \frac{3}{5}$, $P(B) = \frac{1}{4}$ and $P(C) = \frac{1}{3}$, then (I)A, B and C cannot be mutually exclusive events. (II)A, B and C are independent events. (III)Only A and B are mutually exclusive. (a) All are correct. Only (II) is incorrect. Only (I) is correct. All are incorrect. (d) (c) 2. Which of the following methods of finding real roots of the equation f(x) = 0 is quadratically convergent? Jan 21-norwal/ (d) (a) Bisection Method (b) Newton-Raphson Method Secant Method Regula Falsi Method (d) 3. Which of the following methods of finding real roots of the equation f(x) = 0 is quadratically convergent? divergent at M (a) Bisection Method 100 Resignation state Newton-Raphson Method (b) (c) Regula Falsi Method (d) Secant Method 4. If a line makes angles α , β and γ with the X-axis, Y-axis and Z-axis respectively, then the value of $\sin^2 \alpha + \sin^2 \beta + \sin^2 \gamma$ is: (b) (a) 0 (d) 3 5. If $\begin{vmatrix} x & x^2 & 1 + x^3 \\ y & y^2 & 1 + y^3 \\ z & z^2 & 1 + z^3 \end{vmatrix} = 0$, then xyz = ?(b) -11 (a) (d) -2(c) 2

(a) 1 (b) -1 (c) 2 (d) 0 7. If $x + ky - z = 0$, $3x - ky - z = 0$ and $x - 3y + z = 0$ have non-zero solution for $k = ?$ (a) -1 (b) 0 (c) 1 (d) 2 8. Which of the following methods of finding real roots of the equation $f(x) = 0$ is quadratically convergent? (a) Bisection Method (b) Newton-Raphson Method (c) Regula Falsi Method (d) Secant Method 9. Let V be a vector space of all functions from R to R and $W_1 = \{f: F(4)3 + f(2)\}$, $W_2 = \{f: 2f(3) = f(1)\}$, $W_3 = \{f: f(5) = 0\}$. Then which of the following is true? (a) W_1, W_2 and W_3 are subspaces of V . (b) W_1 is not a subspace but W_2 and W_3 are subspaces of V . (c) W_1, W_2 are subspaces but W_3 is not a (d) W_1, W_2 are subspace of V . 10. A quantity like P which distinguishes one population from another similar population is called a (a) Statistic (b) Sampling Distribution (c) Null-hypothesis. (d) Parameter 11. Vital statistics is obtained through; (a) Census (b) Registration (c) Surveys (d) All of the above	6.	If a ≠	$\neq p, b \neq q \text{ and } c \neq r \text{ and } \begin{vmatrix} p & b & c \\ a & q & c \end{vmatrix} =$	0, the	in what is the value of $\frac{p}{p-a} + \frac{q}{q-b} + \frac{r}{r-c}$?	
(c) 2 (d) 0 7. If $x + ky - z = 0$, $3x - ky - z = 0$ and $x - 3y + z = 0$ have non-zero solution for $k = 2$ (a) -1 (b) 0 (c) 1 (d) 2 8. Which of the following methods of finding real roots of the equation $f(x) = 0$ is quadratically convergent? (a) Bisection Method (b) Newton-Raphson Method (c) Regula Falsi Method (d) Secant Method 9. Let V be a vector space of all functions from R to R and $W_1 = \{f: F(4)3 + f(2)\}$, $W_2 = \{f: 2f(3) = f(1)\}$, $W_3 = \{f: f(5) = 0\}$. Then which of the following is true? (a) W_1, W_2 and W_3 are subspaces of V . (b) W_1 is not a subspace but W_2 and W_3 are subspaces of V . (c) W_1, W_2 are subspaces but W_3 is not a (d) W_1, W_2 are subspaces of V . 10. A quantity like P which distinguishes one population from another similar population is called a (a) Statistic (b) Sampling Distribution (c) Null-hypothesis. (d) Parameter 11. Vital statistics is obtained through; (a) Census (b) Registration (c) Surveys		(a)	$\frac{1a \ b \ r_1}{1}$	(b)	-1	
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(a) Statistic (b) Samping Distribution (c) Null-hypothesis. (d) Parameter 11. Vital statistics is obtained through; (a) Census (b) Registration (c) Surveys		calle	ed a		is a smith a single a smith is:	J.L
11. Vital statistics is obtained through; (a) Census (b) Registration (c) Surveys		(a)	Statistic	(b)	Sampling Distribution	
(a) Census (b) Registration (c) Surveys		(c)	Null-hypothesis.	(d)	Parameter	
(a) Census (b) Registration (c) Surveys	11	. Vita	l statistics is obtained through;		1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	ri Viti
(c) Surveys		(a)	Census			Y
ic) 2 (d) -2		(b)	Registration	((1)		(2)
(d) All of the above		(c)				
		(d)	All of the above	: D)		

12.	The de	eath rate of babies under one month is k		
	(a)	Neonatal mortality rate	2013 = 11111111 = 1111111 = 111111 = 1111111	
	(b)	Infant mortality rate	Who storogenius are JM herr filt JM	
	(c)	Maternal mortality rate	ong or All and spaces for in All All	
	(d)	Foetal death rate has profession		Dr. 11
13.	A driv km/ho	ver covers a distance of 400km from Blour. He returns at a speed of 100 km/hou	nubaneswar to Rourkela by a car at sp ur. The average speed during his trip is	eed of 80
	(a)	180 km/hour		
	(b)	90 km/hour		
	(c)	88.88 km/hour (b)	West his pullers of	
	(d)	None of these	value of the series 1 + 2 + 2 + 4 + 4	TUL
14.	. In hist	togram frequencies are proportional to the	ne .	
	(a)	Breadth of the rectangles		
	(b)	Area of the rectangles		
	(c) (B	Height of the rectangles	CB and C be any third events on	到 图
	(d)	None of these	$\frac{1}{2} = \frac{1}{2} \text{ then } = 0$	113 "
15	. For c	comparing the variability of two serie wing measure is used?	s which are in different units, which	
	(a)	Standard deviation	Only A and B are manually exclusive	
	(b)		4	
	(c)	Mean deviation from mean ()	All are concer	(E)
	(d)	Inter quartile range	All are incorrect	(2)
16	625 a	sum, the sum of squares and the stand and 5 respectively. The value of n is 10.	ard deviation of n (n<20) observation	ns are 50.
	(a)	15 (d)	176-4	fal
	(b)	10 ð\l (b)	1/32	(5)
	(c)	8		
	(d)	5		

17. Le	t V be a vector space of all functions	from	$R \text{ to } R \text{ and } W_1 = \{f : F(4)3 + 1\}$	$f(2)$, $W_2 =$
{ <i>f</i> :	$2f(3) = f(1)$, $W_3 = \{f: f(5) = 0\}$.	Then	which of the following is true?	
(a)	W_1 , W_2 and W_3 are subspaces of V .			and
(c)	W_1 , W_2 are subspaces but W_3 is not a subspace of V .	(d)	W_1, W_2 are subspaces of V W_3 is not a subspace of V .	and
	quantity like P which distinguishes of led a	ne po	opulation from another similar	population is
(a)	Statistic	(b)	Sampling Distribution	
(c)	Null-hypothesis.	(d)	Parameter	
19. The	e value of the series $1 + \frac{2^3}{2!} + \frac{3^3}{3!} + \frac{4^3}{4!} + \frac{1}{4!}$			
(a)	e	(b)	$5e^2$. The substitution $5e^2$	
(c)	5 <i>e</i>	(d)		
20. If A	A, B and C be any three events on a		uple space S with $P(A) = \frac{3}{5}$, $P(A) = \frac{3}{5}$	$(B) = \frac{1}{4} \text{ and }$
	$(1) = \frac{1}{3}$, then		pent to acco	(b
	A, B and C can not be mutually exclusi A, B and C are independent events.	ve ev	vents. The villations all gracing tents.	
(II) <u>(II)</u>	Only A and B are mutually exclusive.		Standard decianon	
(111)	· · · · · · · · · · · · · · · · · · ·		Coetficient of variation	(4)
(a)	All are correct.	(b)	Only (II) is incorrect. at most	
(c)	All are incorrect.	(d)	Only (I) is correct.	
	an is torsed six times. The probability			
	oin is tossed six times. The probability		1/2	ery is
(a)	1/64	(b)	172	
(c)		(d)	1/6	(0)
			Å.	(5)

22.	One	of the t	wo events is certain	in to happ	en. The	chance	e of one event	is one-fifth of	the other.
	The	odds in	favor of the other					(Lorsope of)	
	(a)	1:6			(b)	6:1	eir Discelbishe		
							eir Discelleibe		
	(c)	5:1			(d)	1:5			
23.	If or	ne card	is selected at rand	lom from	100 car	ds nur	mbered 00, 01	, 02, 03, 04, .	, 99.
			card is selected at						
			roduct of the digi						
			is a whole number						
	(a)		¹ / ₁₉		(b)	nalzo	find to 119/10	00 / 10 417	
			1/	- Lu	(d) (1)		¹ / ₅		
	(c)		1/100	47 14	(a)		/5	0	
24	. For	husban	d and wife applied	l against a	vacant	post in	an office whe	ere the chances	of getting
			and $\frac{1}{3}$ respective						
		75	and the second	La Chief		(PHILL)	P of Bungass		
	(a)		1/15 ic	Ismali	(d)		2/s noitadra	Binomial Dis	
	(c)		7/15		(d)		8/1	5	
								Poisson Distr	
2:	5. A o	discrete	random variable	takes four	values	-1, 0,	3 and 4 with	probabilities	$\frac{1}{6}$, k , $\frac{1}{4}$ and
	1 -	- 6k, w	here k is a constan	t. The valu	ue of k	will be	ilodutziC lum	Standard No.	(21
	(a)		here k is a constant $\frac{1}{3}$ / $\frac{3}{12}$	(און אַניִנוּן	(b)		2/	9	
			uoringuism ₂ s. i	nosbenk	(b)		noisudinaib	Students to	
	(c)		1/12		(d)		3/2	24	
ien C		TO MANTE	random variable	: inem:	= 1 - 1	ed 25 .		R X SUCCESSE	1991 L.
_			represents	······································	,				
			Frank Carlot	TOWN.	(d)	Len	metric Mean	· Statt-	(4)
	(a)	Arit	hmetic Mean		(b)	Geo	metric Mean		
	(c)) Harı	monic Mean		(b) (c) (d)	Raw	moments	0.5	(0)

(a) Chi-square Distribution (b) Gamma Distribution (c) Hypergeometric Distribution (d) Cauchy Distribution 28. The area under the standard normal curve beyond the lines $z = \pm 1.96$ is: (a) 95% (b) 90% (c) 5% (d) 10% 29. If $X \sim N(\mu, \sigma^2)$, the points of inflexion of normal distribution curve are: (a) $\pm \mu$ (b) $\mu \pm \sigma$ (c) $\sigma \pm \mu$ (d) $\pm \sigma$ 30. The distribution possessing the memoryless property is (a) Binomial Distribution (b) Normal Distribution (c) Poisson Distribution (d) Exponential Distribution 31. The Kruskal-Wallis test statistic H is approximately distributed as (a) Standard Normal Distribution (b) Chi-Square (c) Students' t - distribution (d) Snedecor's F distribution 32. Two variables X and Y are related as $X + Y = 1$, then the value of correlation coefficient between X and Y is (a) -1 (b) 1	27	The	probability distribution for which i	mean and	d variance does not exist:
(e) Hypergeometric Distribution (d) Cauchy Distribution 28. The area under the standard normal curve beyond the lines $z = \pm 1.96$ is: (a) 95% (b) 90% (c) 5% (d) 10% 29. If $X \sim N(\mu, \sigma^2)$, the points of inflexion of normal distribution curve are: (a) $\pm \mu$ (b) $\mu \pm \sigma$ (c) $\sigma \pm \mu$ (d) $\pm \sigma$ 30. The distribution possessing the memoryless property is (a) Binomial Distribution (b) Normal Distribution (c) Poisson Distribution (d) Exponential Distribution 31. The Kruskal-Wallis test statistic H is approximately distributed as (a) Standard Normal Distribution (b) Chi-Square (c) Students' t - distribution (d) Snedecor's F distribution 32. Two variables X and Y are related as $X + Y = 1$, then the value of correlation coefficient between X and Y is				(b)	Gamma Distribution
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(a) 95% (b) $_{90\%}$ (c) 5% (d) 10% (29. If $X \sim N(\mu, \sigma^2)$, the points of inflexion of normal distribution curve are: (a) $\pm \mu$ (b) $\mu \pm \sigma$ (d) $\pm \sigma$ (20. The distribution possessing the memoryless property is (a) Binomial Distribution (b) Normal Distribution (c) Poisson Distribution (d) Exponential Distribution 31. The Kruskal-Wallis test statistic H is approximately distributed as (a) Standard Normal Distribution (b) Chi-Square (c) Students' t - distribution (d) Snedecor's F distribution 32. Two variables X and Y are related as $X + Y = 1$, then the value of correlation coefficient between X and Y is (a) -1 (b) 1	28.	The	area under the standard normal cui	rve beyo	nd the lines $z = \pm 1.96$ is:
29. If $X \sim N(\mu, \sigma^2)$, the points of inflexion of normal distribution curve are: (a) $\pm \mu$ (b) $\mu \pm \sigma$ (c) $\sigma \pm \mu$ (d) $\pm \sigma$ 30. The distribution possessing the memoryless property is (a) Binomial Distribution (b) Normal Distribution (c) Poisson Distribution (d) Exponential Distribution 31. The Kruskal-Wallis test statistic H is approximately distributed as (a) Standard Normal Distribution (b) Chi-Square (c) Students' t - distribution (d) Snedecor's F distribution 32. Two variables X and Y are related as $X + Y = 1$, then the value of correlation coefficient between X and Y is (a) -1 (b) 1		(a)	95% In algorithms the C	(b)	190% which have be a little to see that
(a) $\pm \mu$ (b) $\mu \pm \sigma$ (c) $\sigma \pm \mu$ (d) $\pm \sigma$ 30. The distribution possessing the memoryless property is (a) Binomial Distribution (b) Normal Distribution (c) Poisson Distribution (d) Exponential Distribution 31. The Kruskal-Wallis test statistic H is approximately distributed as (a) Standard Normal Distribution (b) Chi-Square (c) Students' t - distribution (d) Snedecor's F distribution 32. Two variables X and Y are related as $X + Y = 1$, then the value of correlation coefficient between X and Y is (a) -1 (b) 1		(c)	5%	(b)	
(b) $\mu \pm \sigma$ (c) $\sigma \pm \mu$ (d) $\pm \sigma$ 30. The distribution possessing the memoryless property is (a) Binomial Distribution (b) Normal Distribution (c) Poisson Distribution (d) Exponential Distribution 31. The Kruskal-Wallis test statistic H is approximately distributed as (a) Standard Normal Distribution (b) Chi-Square (c) Students' t - distribution (d) Snedecor's F distribution 32. Two variables X and Y are related as $X + Y = 1$, then the value of correlation coefficient between X and Y is (a) -1 (b) 1	29.	If X	$\sim N(\mu, \sigma^2)$, the points of inflexion	of norma	al distribution curve are:
30. The distribution possessing the memoryless property is (a) Binomial Distribution (b) Normal Distribution (c) Poisson Distribution (d) Exponential Distribution 31. The Kruskal-Wallis test statistic H is approximately distributed as (a) Standard Normal Distribution (b) Chi-Square (c) Students' t - distribution (d) Snedecor's F distribution 32. Two variables X and Y are related as X + Y = 1, then the value of correlation coefficient between X and Y is (a) -1 (b) 1 (c) Poisson Distribution (d) Exponential Distribution (e) Chi-Square (f) Snedecor's F distribution (g) Students' t - distribution (h) Snedecor's F distribution (h) Snedecor's F distribution (g) Students' t - distribution (h) Snedecor's F distribution (h) Snedecor's F distribution (h) Snedecor's F distribution to the following formation of the following		(a)	$\pm \mu$	(b)	$\mu \pm \sigma = 0.01$ \big(1)
(a) Binomial Distribution (b) Normal Distribution (c) Poisson Distribution (d) Exponential Distribution 31. The Kruskal-Wallis test statistic <i>H</i> is approximately distributed as (d) Standard Normal Distribution (e) Students' <i>t</i> - distribution (d) Snedecor's F distribution 32. Two variables <i>X</i> and <i>Y</i> are related as <i>X</i> + <i>Y</i> = 1, then the value of correlation coefficient between <i>X</i> and <i>Y</i> is (a) -1 (b) 1		(c)	$\sigma \pm \mu$ and and σ and σ are σ are	(d)	$\pm\sigma$ of the search property of the property of the search set of ± 1
Binomial Distribution (b) Normal Distribution (c) Poisson Distribution (d) Exponential Distribution 31. The Kruskal-Wallis test statistic H is approximately distributed as a statistic H is approximately	30.	The	distribution possessing the memor	yless pro	operty is
(a) Standard Normal Distribution (b) Chi-Square (c) Students' t - distribution (d) Snedecor's F distribution (e) Students X and Y are related as X + Y = 1, then the value of correlation coefficient between X and Y is (a) Living Manager (Agol) 3. (b) 1		(a)	Binomial Distribution	(b)	
(a) Standard Normal Distribution (b) Chi-Square (c) Students' t - distribution (d) Snedecor's F distribution 32. Two variables X and Y are related as X + Y = 1, then the value of correlation coefficient between X and Y is (a) -1 (b) Uhlay off Amazana as A and A production of the		(c)	Poisson Distribution	(d)	Exponential Distribution
Students' t - distribution (c) Students' t - distribution (d) Snedecor's F distribution 32. Two variables X and Y are related as $X + Y = 1$, then the value of correlation coefficien between X and Y is variable virial variable virial day of the value of correlation X and X is variable virial variable virial day of the value of the value of the value of correlation X and X is variable virial variable virial variable virial variable X and X is variable X in the value of correlation X is variable X and X is variable X in the value of correlation X is variable X and X is variable X in the value of correlation X is variable X and X is variable X in the value of correlation X and X is variable X and X is variable X and X is variable X in the value of correlation X is variable X and X is variable X and X is variable X in the value of correlation X in the value of correlation X is variable X and X is variable X in the value of X in the value of X in the value of X is variable X in the value of X in	31.	The	Kruskal-Wallis test statistic H is a	pproxim	ately distributed as mobile space it A. 82
Students' t - distribution (d) Snedecor's F distribution 32. Two variables X and Y are related as $X + Y = 1$, then the value of correlation coefficien between X and Y is (a) -1 (b) 1 (c) Students' t - distribution (d) Snedecor's F distribution (e) Snedecor's F distribution (f) Snedecor's F distribution (g) Snedecor's F distribution (h) Snedecor		(a)	Standard Normal Distribution	(b)	flow off incommon is a constant. The value Chi-Square
32. Two variables X and Y are related as $X + Y = 1$, then the value of correlation coefficier which wantable with probability density multiplication X and Y is $X = X = X = X = X = X = X = X = X = X $		(c)	Students' t - distribution	(d)	X1 (c)
E(log X) represents 1 (d) Arithmetic Mean 20 If Y in tandom variable with probability density function / (A Y bns X newted) 1 (d) 1 (d) Arithmetic Mean		(0)	$^{3/24}$	(b)	(c)
(a) 1 (d) 1 (equiperite Mean (p) Arithmetic Mean (p) (equiperite Mean (p	32.	Two betw	variables X and Y are related as een X and Y is notional variable.	pability	26. If X is a random variable with prob
		(a)			
		(c)			

	attributes A and	B are posit						
(a)	$(AB) > \frac{(A)(B)}{N}$			(b) (AB)	$<\frac{(A)(B)}{N}$	the treat of		
(c)	$(AB) = \frac{(A)(B)}{N}$	g mint- tectable ha		(d) None	of these.		iong? mrail	
34. In th	ne following freque	ency distri	bution, the	one of the	frequencie	es is missin	g.	
	Class Intervals	30-40	40-50	50-60	60-80	80-100	स्थाति संस्थाति	nes Referen
	Frequency	5	15		18	6	,tr/₩	(5)
Whi	ich of the following	g is an app	ropriate m	ethod for e	stimating t	he missing	freque	ncy?
(a)	Newton-Gauss F	ormula	0.5 9	(b) Binor	nial Expan	nsion Form	ula	(a)
(c)	Lagrange's Form	ula	(d) 100	(d) All th	e above.		128	
35. A cy	cle in a time serie	s is represe	ented by th	e differenc	e between	ortnos trac	Shew	odT .1.≥
(a)	Two successive p	eaks	(b) To	(b) The e	nd points o	of a convex	portio	
(c)	The mid-points o	t a trough	and the			effect the sc		(5)
36. The	moving averages i	n a time se	ries are fr	ee from the	influence	of to valid	edoro -	aft Ch
(a)	Seasonal and cyc	lic variatio	ns (d)	(b) Trend	and seaso	nal variatio	n	
(c)	Only secular tren	d. am 2 11 m	(d) Typ	(d) Seaso	nal and irr	egular vari	ations.	(c).
37. Whe	n several time ser	ies models	are fitted	to estimat	e the ling	term comp	onent	of a time
serie	s, then the best mo	del have	(b) R.c	ecther in	nelunte fo	nd S.D. fi	н а	(6)
(a)	Reliable estimates	s of the mo			st residual	sum of sq		
	parameters	of these.	IIA (L)			ושרוא שת פכ	R-9	(4)
(c)	The shape of the	itted curve	ved in the	d) All of	these.	(x-y) yiii	панр 5	11T . 65

(b) Dispersion matrix

Mahalanobis squared distance

represents

(a) Multivariate normal density

(c) Exponential senes

38. Com	bining two index number series	having to	wo different base	years into a sin	gle series
	only one base year is known as				
(a)	Splicing and the sure of	(b)	Base shifting		
()	Deflating	(d)	None of these.		
(c)	201-001 7:50-051 (*)			maj un milai s	rty of ES
39 Fact	or reversal test permits the interc				
(a)	Base periods		Price and quanti	ties	
(11)		(d)		211 111 1111	
(c)	Weights	(u)	8 ,		
40. The	consumer price index numbers	for 2001 a	and 2002 to the b	base 1994 are 32	0 and 400
	ectively. The consumer price ind				, 1 V /
(a)	125 a real not engret he react	(b)	80 alumnos	Market Circles	
(a)	120	(4)	100		
(c)	All the above.	(u)	100	mil z bga zgad	1.17
41. The	Shewhart control charts are mea	nt:	Нья повотног эт ка	ck in a time seri	
(a)	To detect whether the process				of
(a)	under statistical control or not.				
		*)	assignable cause	gnion-mersil	
(c)	To reflect the selection of samp	ples. (a)	All of these.		
42. The	probability of accepting a lot wi	th fraction			urt of
(a)	Consumer's risk	(b)	Type I error	So pur Prais cos	
(c)	Producer's risk me base laneses	(b) (d)	Type II Error	ana ass (II)	
43. R-C	Charts are preferable over σ —cha	arts becaus	enes models fac _e	n several time sa	37. Wha
(a)	R and S.D. fluctuate together	er in (b)	R can be easily	calculated	serie
		(4)		Petiable estimat	
(c)	R-charts are economical.	(d)	All of these.	parameters	
	e quantity $(x - \mu)' \Sigma^{-1} (x - \mu)'$	involved	in the multivari	ate normal dens	ity function
	resents:				
(a)	Multivariate normal density	(b)	Dispersion ma	trix	
(c)	Exponential series	(d)	Mahalanobis s	quared distance	

		expression present			iate norn	nal densit	y function describ	oing the	shape of
the	de	ensity is	- 1 7 1		10				
(a)		$\frac{1}{(2\pi)^{p/2} \Sigma ^{1/2}}$			(b)	7 .	$e^{-\frac{1}{2}(x-\mu)'\Sigma^{-1}(x-\mu)}$		
(c)		$(x-\mu)'\Sigma^{-1}$	$-1(x-\mu)$		(d)	All the a	bove		
46. Lo	cal	control in the fiel	d is main	tained	through				
(a)		Uniformity trials			(b)	Random	ization basel is		
(c))	Natural factors	mez Taldt		(d)	None of	the above		
47. W	hic	ch of the following	is a treat	ment c	ontrast?				
(a)		$3T_1 - T_2 - 3T_3 +$	T_4		(b)	$T_1 + 3T_2$	$_{2}-3T_{3}+T_{4}$		
		l'ed av					dir component		
(c))	$-3T_1 - T_2 + 3T_3$	$+T_4$			$I_1 + I_2$	$+T_3+T_4$		
48. Th	ie i	maximum possible				contrasts a			
(a)		Four					ות מ נוותכ אכדוכא מד		
- 1		marky mailin	sbuil	quie	(d)	0	vicity		
(c))	Two	on (a) his		(a)	One	(d) bus is		
49. Tł	he	following layout m	neets the r	equire	ements of	fa zen i bak	Licient estimatry A		
		A A							
		A	В	C	\mathbf{D}				ta.)
		il më (lil a A)	C	\mathbf{B}_{0}	(LD				
		В	A	C om ai i	C nografia	Enionalia)	nples, which of the	mes ogmi	56. For
		official trAm	A	В	(CC 10	armies b			
(a	1)	Completely rando			(b)	Randon	nized block design	n start	
(c	;) (1)	Latin square desi	r zobioh gn nomi zbi	1 211	(d)	None o			(0)
50. In	ı th	e analysis of data	using a ra	andom	ized bloo	ck design	with b blocks wit	th ν trea	tments, the
		r degrees of freedo							
(a		$(b-1)(\nu-1)$			(b)		b(v-1)		
(c	:)	v(b-1)			(d)		bv-1		

51.	A ra	indomized block design has an imm	ent sint	extition after a tuescal acceptation sail Ch
	(a)	One way classification	(b)	Two way classification and the second
((c)	Three way classification	(d)	Two way cross classification
52. 7	The	general decline in sales of cotto	n clothe:	s is attached to the component of the time
s	erie	28:		rates construction the field is managed as
(a)			Seasonal variation
(c)			Irregular component
53. T	The	sales of a departmental store	on Duss	sehra and Diwali are associated with the
c	om	ponent of a time series:	(d)	(a) 37 ₁ - 7 ₂ - 27 ₃ + 7 ₄
	a)	Irregular component	(b)	Secular trend
				$-3T_{c}-T_{c}+3T_{c}+T_{c}$
(0	c)	Cyclic Component	5 6	
		sestorintican mod Suouer sistan e	limenion	48 Inc maximum possible number of out
54. T	he o	cycles in a time series are regular i	$\mathbf{n}^{(1)}$	(a) France
(a	a)	periodicity	(b)	amplitude
(0	c)	Both (a) and (b)	(d)	Neither (a) nor (b)
55. If	f a n	most-efficient estimator A and a less	-efficient	estimator B of a certain parameter tend to joint
n	orm	ality for large samples, then the corre	lation bet	ween $B - A$ and A is
(8	a)	1 - Company of the contract of	(b)	0
(0	e)	-1 -11-3-1 44	(d)	0.5
			2.	Trigodi Engli
56. F	or la	arge samples, which of the following	statemen	t is true?
(2	a)	The maximum likelihood estimat	or (b)	The maximum likelihood
		tends to minimum Chi-squa estimator.	ire	estimator and minimum Chi-square estimator does not exist.
(c	:)	The minimum Chi-square estimat	or (d)	The maximum likelihood estimator
				and minimum Chi-square estimator 1 (12)
		estimator.	5-74G [J/35]	are completely different.
		b(v-1)	(d)	(a) $(b-1)(v-1)$

11

57. If X has a F -distribution with parameters p and q, then the distribution of $\frac{P}{1+P}$, where P	$=\frac{p}{q}X$ is
------------------------------------------------------------------------------------------------------------	--------------------

(a) Beta $\left(\frac{p}{2}, \frac{q}{2}\right)$

- (b) Exponential (p+q)
- Normal $\left(p, \frac{pq}{2}\right)$

None of these. (d)

58. If a negative value appears in the solution values (x_b) column of the simplex method, then

- (a) The basic solution is optimum
- The basic solution is infeasible (b)
- The basic solution is unbounded (c)
- All of the above (d)

59. The set $S = \{(x_1, x_2) : x_1, x_2 \ge 1; x_1 \ge 0, \text{ and } x_2 \ge 0\}$ is

(a) 25/61 =

- Convex (a)
- (b) Not convex
- Concave (c)
- None of the above of the ways ways and model and about a man a control of the product of the specific man and the specific man and the specific man are the specific man and the specific man are the specific man are the specific man are the specific man and the specific man are the (d)

60. The curve $a^2y^2 = x^2(a^2 - x^2)$

- is symmetric about both the axes. (I)
- has two tangents at origin given by $y = \pm x$. (II)
- has no asymptotes. (III)
- Only (I) is correct. (a)
- (b) (II) and (III) are correct.
- (I) and (III) are correct. (c)
- (d) All of these are correct.

61. The curve $a^2y^2 = x^2(a^2 - x^2)$

- (I) is symmetric about both the axes.
- (II) has two tangents at origin given by $y = \pm x$.
- (III) has no asymptotes.
- Only (I) is correct. (a)

- (II) and (III) are correct. (b)
- (I) and (III) are correct. (c)
- All of these are correct. (d)

(10) 25-7

(a)	1.62	(b)	2		
(c)	Nome of the e	(d)	2.62		
63. The	equation $ax^2 + by^2 + cz^2 + 2f$ esents a sphere, if		THE PROPERTY OF THE PARTY OF TH		-d=0
	a = b = c	(b)	f = g = h = 0		
(c)	u = v = w	(d)		f = g = h = 0 $f = g = h = 0$	
64. The	maximum value of $y = (1 - x)(2 +$	- 3 <i>x</i>)			112 112
(a)	²⁵ / ₁₂	(b)	²⁵ / ₃₂	x รากอไป	
(c)	∞' _{ya} dan (Tamasan, m	(d)	²⁵ / ₆₄		
65. A m	nan selected six books in a book fair.	In hov	w many ways can he	e buy at least two	
boo				te francis	
(a)	2^6	(b)	6 ² mail described	, or stormal years	
(c)	$2^6 - 7$	(d)	$6^2 - (6-1)$	Min Seekin self (*)	
66. The	value of the series $1 + \frac{2^3}{2!} + \frac{3^3}{3!} + \frac{4^3}{4!} + \frac{4^3}{4!}$	(16) :	·is		
(a)	All of these are contect.	(b)	$5e^2$	D. nu. III. un. (I)	
(c)	5 <i>e</i>	(d)	e^5 $(4x-4p)$	$cure a^2y^2 - x^2$	ol. The
67. The	speed of your internet access is defin	ed in	terms of:	andraniemings Argunitalisis	
(a)	RAM				
(b)	Mega Hertz				
(c)	Kilobytes per second				
(d)	Megabytes				

62. The order of convergence of Secant method is approximately equal to

- 68. Modem stands for
 - (a) Modular Demodulator
 - (b) Monetary Devaluation Exchange Mechanism
 - (c) Memory Demagnetization
 - (d) Monetary Demarcation
- 69. What is the difference between Internet and an Intranet?
 - (a) One is public and other is private
 - (a) One if safer than the other
 - (c) One can be monitored, the other can't
 - (d) None of the above
- 70. A JPG is
 - (a) a Jumper Programmed Graphic
 - (b) a format for an image file
 - (c) a type of hard disk
 - (d) a unit for measuring memory of a computer
