

	b) If a random variable has a Probability density $f(x)$ as $f(x) = \begin{cases} 2e^{-2x}, & \text{for } x > 0 \\ 0, & \text{for } x \le 0 \end{cases}$	
	Find the Probabilities that it will take on a value (i) Between 1 & 3 (ii) Greater than 0.5	[6M]
9.	A continuous random variable has the probability density function. $f(x) = \begin{cases} k \ x \ e^{-\lambda x}, \text{ for } x \\ 0, \text{ otherwise} \end{cases}$	≥0, <i>λ</i> >0
10	Determine the constant K, find mean and variance.[10 M] b. Probability density function of a random variable X is $f(x) = \begin{cases} \frac{1}{2} \sin x, & \text{for } 0 \le x \le \pi \\ 0, & \text{elsewhere} \end{cases}$ . Find the mean of the mean of the second sec	an,
	mode and median of the distribution and also find the probability between 0 and $\frac{\pi}{2}$ .	[6 M]
	<u>UNIT-II</u>	
1.	<ul><li>a) Derive mean and variance of Binomial distribution.</li><li>b) 20% of items produced from a factory are defective. Find the probability that in a sample of</li></ul>	[6 M]
	Chosen at random (i) one is defective (ii) $p(1 < x < 4)$ [6 M	
2.	a) Fit a Binomial distribution to the following frequency distribution:	[6 M]
	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
	f 2 14 20 34 22 8	
	b) The mean and variance of a binomial distribution are 4 and $\frac{4}{3}$ . Find $p(X \ge 1)$ .	[6M]
3.	a) Out of 800 families with 5 children each, how many would you expect to have (a) 3 boys (b)	5
	girls(c) either 2 or 3 boys. Assume equal probabilities for boys and girls.	[6M]
	b) Two dice are thrown five times. Find the probability of getting 7 as sum i) at least once (iii) $r(1 \le n \le 5)$	
4	(ii) $p(1 < x < 5)$ a) Derive mean and variance of poisson distribution.	[6M] [6 M]
	b) If 2% of light bulbs are defective. Find the probability that (i) At least one is defective	
	(ii) $p(1 < x < 8)$ in a sample of 100	[6 M]
5.		[8 M]
	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
	b) If the mean of a Poisson distribution is 1.8 then find $p(X > 1)$ .	[4M]
6.		[ 11,1]
	that a man of this age will be alive 30 years is 2/3. Find the probability that in 30 years.	
	(i) At least one man (ii) Almost three will be alive	[6M]
	b) If X is a Poisson variate such that $3P(X = 4) = \frac{1}{2}P(X = 2) + p(X = 0)$ ,	
	find (i) the mean (ii) $P(X \le 2)$	[6 M]
7.	Derive mean and variance of Normal distribution.	[12 M]
8.	Find the mean and variance of a Normal distribution in which 7% of items are under 35 and 89% are under 63.	[1 <b>2</b> M]
9.		[12 M] /]
10	). In a sample of 1000 cases, the mean of certain test is 14 and standard deviation is 2.5. Assuming	-
	distribution to be normal find (i) how many students score between 12 and 15. (ii) How many s	tudents
	score above 18? (iii) How many students score below 18?	[12 M]

[6M]

## <u>UNIT-III</u>

-1 a) $Find$	l arithm	etic m	ean to	the f	ollov	wing	data	a usir	no st	ten de	eviati	on	neth	bd			[ 6M	1
· · · ·	Marks 10-20				<u> </u>			30-40			40-:			50-	-60	[ 010	<u>L</u> .	
fr	frequency 5		8	8			25			22		10						
b) Find	b) Find the median to the following			g da	ita			<u> </u>			<u> </u>			[ 6M		[]		
	x 5 8		<u> </u>	1	1	14	4		17		20		23					
	f 2 8				12	2	20	)		10		6		3				
	2. a) Find the median to the following data [6M]									]								
	Class intervals 40-50				50-	60			-70		-	)-80		_	)-90			
	frequency5b) Find arithmetic mean to the following				11	12			23			8			2			
b) Find		etic me	$\frac{1}{1}$	the fo	1		lata	3			1				-		[6M]	
-	X F		5		2				<u> </u>		4	2			5 5			
3. A) Find	-	to the f	-	ing da					J		1	L			5			[6M]
																		[01/2]
Х	0-	10	10	-20		20-3	0	3	0-40	)	40	-50		50-	60		60-′	70
F	4		13			21		4	•		33			22			7	
	first fou										of the	e va	riable	es are	2,2	20, 4	40 an	d 50.
Calc	Calculate mean, variance, $\beta_1$ and $\beta_2$ of the distribution. [6M]																	
-	4. Compute Karl Pearson and Bowley's coefficient of Skewness to the following data [6M]																	
6					• •		10		~									
Class		)-10	10-20	) 20-	-30	30-	-40	40-5	0	50-6	0   60	)-7(	)   7	0-80	8	80-9	0	90-100
interv																		
freque		2	6	11		20		40		75	44			5		8		8
5. Compu		rst fou	r cent	ral mo	men	ts to	the	follov	ving	g data	and	alsc	find	Shep	opar			
$\beta_1$ and																	[6M]	
Class	-	-10	10	)-20	2	20-30	)	30-	40		40-50	)	50	)-60		60-	70	
interv						10		10			20		1.0			2		
freque	•		8	<u></u>		12 (b) f	- 11	40	1 - 4 -		20		15	)		3		
6. a)Calcu		$\frac{15}{15}$	12								24		14	,	22		[6M 20	.]
	30	42	45				13 33		16 34		24 40		<u>    14</u> 35		22 39	20		
	ain the r			on coe		ient f							55	·	57		[6 M	1
	48	60	72		62		56		40		<u>39</u>		52	30			[0 10]	.]
	62	78	65		70		38		54		60		32		31			
7. a) Ten	competi	itors in	a mus	sical te	est w	vere 1	ranke	ed by	the	three	e judg	es A	A, B ;	and C	in t	the f	follov	wing
order:																		[6M]
	s by A	1	6	5	10	)	3	2		4		9		7		8		
	s by B	3	5	8	4		7	10	)	2		1		6		9		
	s by C	6	4	9	8		1	2		3		10		5		7		
	rank cor	relatio	n coef	ficient	me	thod	disc	21100 11	vhic	h nai	r of i	nda	ec ha	e tha	near	rest	annr	oach to
Using 1				1101011		uno a	, uist	Juss v	me	in pai	1 01 J	uug	cs na	s the	nea	Cot	appr	
comm	on likin	gs in m	nusic.							_	_	_						
commo b) If th		gs in m nes of 1	nusic. regres	sion a	re 4X	X-5Y	7+30	=0 an	d 20	_	_	_						

8. a) Obtain the rank correlation coefficient for the following data :

$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	wo reg the the the fo the four out me the rank	$\frac{25}{64}$ correlati $\frac{66}{68}$ illowing moments an, $\beta_1$ a c correla $\frac{12}{35}$	$\begin{array}{c} 67\\ 65\\ \hline \\ regressio\\ s of a distriand \beta_2 Alternal \\ \end{array}$	42 58 ient for t 67 68 on equat ibution a so find n	377373he follo6872ions, cbout vanoment	owing b owing b owing b alcular alcular alue of tollow	$\frac{35}{75}$ heights $69$ $72$ Inte $\overline{X}$ , for the variant originary data and a second secon	$70$ $69$ $\overline{Y} \text{ and r } 20$ riable are -	72 71 0X-9Y=10	] )7, 4X-5Y	7=-33	[6M
Y62b) Find tvXIOY56. a) Calcula $X$ $X$ 65YY67b) From0.a) The firs100 From0.a) The firs100 Dotain thX100 Y32. a) By met. b) Fit a set	wo reg ate the the fo the four but me he rank	$     \begin{array}{r}       58 \\       gression \\       25 \\       64 \\       correlati \\       66 \\       68 \\       llowing \\       moments \\       an, \beta_1 a \\       correla \\       12 \\       35 \\       \end{array} $	68equations3463on coefficient6765regressions of a distributionand $\beta_2$ Allation coefficient15	45 s from tl 42 58 ient for t 67 68 on equat ibution a so find n ficient f 22	81he follo3773he follo6872ions, cbout vahour the28	owing b owing b owing b alcular alcular alue of tollow	$     \begin{array}{r}       60 \\       g data: \\       35 \\       75 \\       heights \\       69 \\       72 \\       \hline       te \overline{X}, \\       f the variation of the variance of the varia$	$68$ $36$ $82$ $3$ (in inchest $70$ $69$ $\overline{Y}$ and r 20riable are -n.ata:	48 45 77 3) of fathers 72 71 0X-9Y=1( -1.5,17,-30	50 s(X) and th )7, 4X-5Y and 108.F	70 neir son 7=-33	is(Y) [6N [6N
b) Find tw X = 10 Y = 56 X = 65 Y = 67 b) From 0.a)The first noments above 0 Obtain th X = 10 Y = 67 b) From 0.a)The first noments above 1 Obtain th X = 10 Y = 67 b) From 0.a)The first noments above 1 Obtain th X = 10 Y = 67 b) From 0.a)The first noments above 1 Obtain th X = 10 Y = 32 b) Fit a set	thod o	gression 25 64 correlati 66 68 ellowing moments an, $\beta_1$ a correlati 12 35	equations 34 63 on coefficient 67 65 regressions of a distribution coefficient attion coefficient 15	s from the 42 58 second	he follo 37 73 he follo 68 72 ions, c bout va noment or the 28	owing owing 1 owing 1 alculat alculat alculat s abou	g data: 35 75 heights 69 72 f the $\overline{X}$ , $\overline{X}$ f the van it origin ving data 30	$\begin{array}{c c} \hline 36 \\ \hline 82 \\ \hline (in inches) \\ \hline 70 \\ \hline 69 \\ \hline \overline{Y} \text{ and r } 20 \\ \hline riable are - n. \\ \hline nta: \\ \hline \end{array}$	45 77 3) of fathers 72 71 0X-9Y=10 -1.5,17,-30	s(X) and th , 4X-5Y and 108.F	neir son V=-33	as(Y) [6N [6M
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	the four the four out me ie rank	$\frac{25}{64}$ correlati $\frac{66}{68}$ illowing moments an, $\beta_1$ a c correla $\frac{12}{35}$	$\begin{array}{c c} 34 \\ 63 \\ on coefficients \\ 67 \\ 65 \\ regressions of a distribution coefficients \\ 15 \\ \hline 15 \\ 15 \\ \hline 15 \\ \hline 15 \\ 15 \\ \hline 15 \\ 15 \\ 15 \\ 15 \\ 15 \\ 15 \\ 15 \\ 15 \\$	42 58 ient for t 67 68 on equat ibution a so find n ficient f 22	3773he follo6872ions, cbout vanomentor the28	alculat alculat alue of follow	$\frac{35}{75}$ heights $69$ $72$ Inte $\overline{X}$ , for the variant origin ving data and a second sec	82       in inches       70       69 $\overline{Y}$ and r 20       riable are -       n.       nta:	77 3) of fathers 72 71 71 0X-9Y=10 -1.5,17,-30	)7, 4X-5Y and 108.F	7=-33	as(Y) [6N [6M
$\begin{array}{c c} Y & 56 \\ \hline Y & 56 \\ \hline a) Calcula \\ \hline X & 65 \\ \hline Y & 67 \\ \hline b) From \\ \hline b) From \\ \hline 0.a) The firs \\ \hline roments abc \\ \hline 0 Obtain th \\ \hline X & 10 \\ \hline Y & 32 \\ \hline \end{array}$	the for the for the rank thod o	$ \begin{array}{c} 64\\ correlati\\ 66\\ 68\\ \hline ellowing\\ moments\\ an, \beta_1 a\\ c correla\\ 12\\ 35\\ \end{array} $	63         on coefficient         67         65         regression         s of a distribution         and $\beta_2$ Ale         attion coefficient         15	58 ient for t 67 68 on equat ibution a so find n ficient f 22	73he follo6872ions, cbout vanomentor the28	alcular alcular alue of follow	$75$ heights $69$ $72$ ate $\overline{X}$ , $\overline{X}$ f the variation originut originving da $30$	82       in inches       70       69 $\overline{Y}$ and r 20       riable are -       n.       nta:	77 3) of fathers 72 71 71 0X-9Y=10 -1.5,17,-30	)7, 4X-5Y and 108.F	7=-33	[6N [6N
a) CalculaX65Y67b) FromD.a)The firsnoments abcoObtain thX10Y32	the the four the rank	correlati 66 68 which wing moments an, $\beta_1$ a c correlation 12 35	on coefficient on coefficient 67 65 regressions s of a distribution of $\beta_2$ Aliant attion coefficient 15	67 68 68 68 68 68 68 68 60 60 60 60 60 60 60 60 60 60 60 60 60	he follo 68 72 ions, c bout va noment or the 28	alcular alcular alue of s abou	heights $\overline{69}$ $\overline{72}$ Atte $\overline{X}$ , $\overline{X}$ attoriging $\overline{30}$	$\overline{Y}$ and r 20 riable are - n.	3) of father         72         71         0X-9Y=10         -1.5,17,-30	)7, 4X-5Y and 108.F	7=-33	[6N [6N
$\begin{array}{c c} Y & 67 \\ \hline b) From \\ 0.a) The firs about the form and the for$	the fo the four out me he rank	$\frac{68}{\text{moments}}$ an, $\beta_1$ a c correla $\frac{12}{35}$	$\begin{array}{c} 65 \\ \hline \\ \text{regressio} \\ \text{s of a distribution} \\ \beta_2 \\ \text{Altion coeff} \\ 15 \end{array}$	68 68 ibution a so find n ficient f	72 ions, c bout vanoment or the 28	alculat alue of s abou follow	72 ate $\overline{X}$ , for the variant originary data and a second seco	$\overline{Y}$ and r 20 riable are -	71 0X-9Y=10 -1.5,17,-30	and 108.F		[6N
b) From b) From c) a) The firs coments above c) Obtain th $\overline{X}$ 10 $\overline{Y}$ 32 c) a) By met b) Fit a set	t four out me rank	blowing moments an, $\beta_1$ a c correla 12 35	regressions of a distribution coefficient $\beta_2$ Alexandright $\beta_2$ Alexandright $\beta_2$ and $\beta_3$ and $\beta_4$ and $\beta_4$ and $\beta_4$ and $\beta_5$ are a spectrum of the second seco	n equat ibution a so find n ficient f	ions, c bout va noment or the 28	alculat alue of s abou follow	the $\overline{X}$ , f the variant origination of $\overline{X}$ and $\overline{X}$ the variant origination of $\overline{X}$ and \overline	$\overline{Y}$ and r 20 riable are - n. nta:	0X-9Y=10	and 108.F		[6N
a)By met	t four out me rank	moments an, $\beta_1$ a <u>correla</u> <u>12</u> <u>35</u>	s of a distributed of a distributed strain solution coefficient $15$	ibution a so find n ficient f 22	bout vanoment or the	alue of a abou follow	f the van ut origin ving da 30	riable are - n. ata:	-1.5,17,-30	and 108.F		[6N
Y 32 a)By met b) Fit a se	thod o	35										
a)By met	thod o		12	10	52	•	30	65	68	70		
	Λ		-			to the						[6N
·		1		2	3		4	5	_			
·	у	14	4 2	27	40		55	68				
x y a) Fit a p	0 1 arabo	1.8	2 3 1.3 2.5 data give									[6N
X	uluoo	1	2	3		4		5 4	1			[01,
Y		10	12	8				-	_			
Ĭ		10	12	8		10		14				
b) Obtair	n a rela	ation of	the form	$y = ab^{\lambda}$	for th	e follo	owing	data by m	nethod of	least squa	res	[6N
X		2	3	4		5		6				
Y		8.3	15.4	33	.1	65.2	2	127.4	-			
a) Find th		1	est fit of th	ne type		9		owing data	a by meth	od of leas	t squar	res [6N
Y		10	15	12		15	4	21				
b) Fit a st	traigh	t line y	=ax+b	for the f	ollowir	ng data	L					[6N
		6 7	-	8	8	8	9	9 10				
		5 5		5	4	3	4	3 3				
a) Fit a y	$y = ax^{t}$	<sup>b</sup> to the	following	, data, a	lso cal	culate	y(2.5	)				[6N
Г	X	1		2	4		6		]			101
		1		_					I			
robability	0 ~											

Y		6	4		2	2		7			
b) Fit a sec	ond degr						method	of least sq	uares		[6
X	0	1		2	3		4				
Y	1	5		10	22		38	_			
a) A sampl	e of 400 i	items is	taken	from a po	pulation	n whose	e standar	d deviation	n is 10.	. The 1	nean o
the sample				-	-						[6
b) The mea	ns of two	o large s	ample	s of sizes	1000 ai	nd 2000	membe	rs are 67.5	inches	s and 6	58.0 in
respectivel		e sampl	es be r	egarded a	as drawr	n from t	he same	population	n of sta	andard	
2.5 inches?				1 6 40			1.0	150001	<b>T</b> 1 '		[6
a) It is claim			-	-	•					-	
	om a pop nce at 0.0			mean is	15150KI	ms and	standard	l deviation	01 120	JU KIII.	Test t
b) Samples				n from tv	vo unive	ersities	and from	n their weig	ohts in	kilogr	-
-								large sam	-	-	
significar								6 1	-		[ (
				Mear	1		S.D	)	Siz	e of th	e sam
	rsity A			55			10		400		
University B				57			15	100			
		1 0 4 6					0 1				
<ul> <li>a) In a rand hypothesis</li> <li>b) On the b to two grou Among the</li> </ul>	P = 0.5 as is of the up first group of the second secon	against eir total pper 30 up, 40 h	the alto l score % and ad cor	ernative h s, 200 can the rema rect answ	ypothes ndidates ining 70 ver, whe	sis is P of a civ 0%.cons re as an	> 0.5 vil servic sider the nong the	ce examina first questi second gro	tion ar on of t oup, 80	re divio the exa 0 had o	[( ded in aminat correct
<ul> <li>a) In a rand hypothesis</li> <li>b) On the b to two grou</li> </ul>	P = 0.5 as as of the ups, the up first group the basis	against eir total pper 30 up, 40 h s of thes	the alto l score % and ad cor se resu	ernative h s, 200 can the rema rect answ lts, can on	hypothes indidates ining 70 ver, whe ne concl	sis is P of a civ %.cons re as an lude tha	> 0.5 vil servic sider the nong the	ce examina first questi second gro	tion ar on of t oup, 80	re divio the exa 0 had o	[( ded in aminat correct
<ul> <li>a) In a rance hypothesis</li> <li>b) On the b to two grout Among the answer. Or discriminate</li> <li>a) A die wate</li> </ul>	P = 0.5 as as of the ups, the up first group the basis ing abilit	against heir total pper 30 up, 40 h s of thes ty of the a 9000 ti	the alternation scores and correst type to type to the sales	ernative h s, 200 can the rema rect answ lts, can on being exam nd of thes	hypothes indidates ining 70 ver, whe ne concl mined h	sis is P: of a civ %.cons re as an lude tha ere?	> 0.5 vil servic ider the nong the t the firs	ce examina first questi second gro t question	tion ar ion of t oup, 80 is not	re divid the exa 0 had d good a	[6 ded in aminat correct at [6 the
<ul> <li>a) In a rance hypothesis</li> <li>b) On the best to two group Among the answer. Or discriminate</li> <li>a) A die way hypothesis</li> </ul>	P = 0.5 as as of the ps, the up first group the basis ing abilit as thrown that the c	against pper 30 up, 40 h s of thes y of the 19000 ti lie was	the alto l score % and ad cor se resu type b imes an unbias	ernative h s, 200 can the remain rect answer lts, can on being exam- nd of thes ed?	hypothes indidates ining 70 ver, whe ne concl mined h se 3220	sis is P: of a civ 0%.cons re as an lude tha here? yielded	> 0.5 vil servic ider the nong the t the firs a 3or 4.	ce examina first questi second gro t question Is this con	tion ar ion of t oup, 80 is not sistent	re divid the exa 0 had d good a t with t	[6 ded in aminat correct tt [6 the [6
<ul> <li>a) In a rance hypothesis</li> <li>b) On the b to two grout Among the answer. Or discriminate</li> <li>a) A die wath hypothesis</li> <li>b) In two late</li> </ul>	P = 0.5 as as of the up first group the basis ing abilit as thrown that the course popu	against heir total pper 30 up, 40 h s of thes by of the a 9000 ti lie was ilations,	the alto l score % and ad cor se resu type t imes an unbias there	ernative h s, 200 can the remain rect answer lts, can on being exam- nd of these ed? are 30%,	aypothes indidates ining 70 ver, whe ne concl mined h we 3220 and 259	sis is P: of a civ 0%.cons re as an lude tha ere? yielded % respec	> 0.5 vil servic ider the nong the t the firs a 3or 4. ctively o	ce examina first questi second gro t question Is this con of fair haire	tion ar ion of t oup, 80 is not sistent d peop	re divid the exa 0 had o good a t with t	[6 ded in aminat correct tt [6 the [6 this
<ul> <li>a) In a rand hypothesis</li> <li>b) On the b to two grou Among the answer. Or discriminat</li> <li>a) A die wa hypothesis</li> <li>b) In two la difference</li> </ul>	P = 0.5 as as of the up, the up first group the basis ing abilit as thrown that the courge popul- likely to b	against heir total pper 30 up, 40 h s of thes y of the 19000 ti die was ilations, be hidde	the alto l score % and ad cor se resu type t imes an unbias there en in sa	ernative h s, 200 can the rema rect answ lts, can of being exan nd of thes ed? are 30%, amples of	and interpretent and idates in the second ver, when the conclusion of the second mined has a second	sis is P: of a civ 0%.cons re as an lude tha ere? yielded % respended	> 0.5 vil servic ider the nong the t the firs a 3or 4. ctively o respectiv	ce examina first questi second gro t question Is this con of fair haire vely from t	tion ar on of t oup, 80 is not sistent d peop he two	re divid the exa 0 had 0 good a t with t ble. Is p popu	[6 ded in aminat correct tt [6 the [6 this lations
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<ul> <li>a) In a rance hypothesis</li> <li>b) On the b to two grout Among the answer. Or discriminate</li> <li>a) A die wat hypothesis</li> <li>b) In two lat difference</li> <li>a) A randor can we at b) Two randeviations if the popu</li> <li>a) In a big he conclusion</li> <li>b) A sample conclusion</li> <li>c) A sample conclusion</li> </ul>	P = 0.5 asis of the sis of the ps, the up first group the basis ing abilit as thrown that the data the f 64 stud the mean velocities are the data the mean velocities are the velocities are the data the mean velocities are the velocities are th	against leir total pper 30 up, 40 h s of thes y of the 19000 ti die was llations, be hidde of size at the sa ples of 1 1.548. ndard de men out majorit ents hav weight 5	the alto I score w and ad core result type b imes an unbias there to in sa 50 has umple b sizes 1 Test t eviation t of 600 y of m we mea 56kgs a es a me of bulb	ernative h s, 200 car the rema rect answ lts, can or being exar and of thes ed? are 30%, amples of s standard nas been of 00 each a he signifi on is 2. 0 men we en in this n weight and stand ean life o bs is 1000	and 25% ining 70 ver, whe me concl mined h as 3220 and 25% 1200 and deviation drawn fr ure drawn cance di ere found city are of 70 kg ard devia <b>UNIT</b> f 990 ho	sis is <i>P</i> : of a civ 0%.cons re as an lude that ere? yielded % respend nd 900 : on 11.8 com the on from ifference d to be se e smoke gs. Can iation 2: <u>-V</u> ours wit Is the sa	<ul> <li>&gt; 0.5</li> <li>vil service</li> <li>vil service</li> <li>vider the</li> <li>nong the</li> <li>the firsting</li> <li>a 3or 4.</li> <li>ctively of</li> <li>respective</li> <li>drawn f</li> <li>populate</li> <li>two populate</li> <li>two populate</li> <li>two populate</li> <li>smokers</li> <li>smokers</li> <li>rs?</li> <li>this be r</li> <li>5kgs?</li> <li>h a S.D e</li> <li>ample not</li> </ul>	ce examina first questi second gro t question Is this con of fair haire vely from t rom a norr ion with S. pulations w en the samp . Does this regarded as of 20 hours of up to the	tion ar ion of t oup, 8( is not a sistent d peop he two nal pop D 10? ith the ple stat inform a sam s. The standa atted be 1	re divid the exa 0 had o good a t with t ple. Is populatic standa ndard nation ople fro manuf ard.	[6 ded in aminat correct at [6 the fations on. [6 ard deviat: ard [6 suppo [6 om a [6 cacture: [6]

Would you say that the dice are fair on the basis of the chi-square test at 0.05 level of significant?

2. To examine the hypothesis that the husbands are more intelligent than the wives, an investigator took a sample of 10 couples and administered them a test which measures the I.Q. The results are as follows: [12M]

													QU	ESTION	I BANK	2019
	Husbands	117	105		97	1	05	1	23	10	9	86		78	103	107
	Wives	106	98		87		04		16	95		90		69	108	85
	Test the hypothesis with a reasonable test at the level of significant of 0.05 and also calculate F-															
	test.															
	3. A random sample of 10 boys had the following I.Q's : 70,120,110,101,88,83,95,98,107 and 100 a) Do these data support the assumption of a population mean I.Q of 100? [12M]															
			-		-		-					-				[12M] ·
	b) Find a reasonable range in which most of the mean I.Q values of samples of 10 boys lie. 4. a) Blood pressure of 5 women before and after intake of a certain drug are given below [6M]															
4. 8	Before			lien	120			125		1 a C	132		ig ar	125	Delow	[6M]
	Delore	110			120			123			152			123		
	After	120			118			125			136			121		
	Test wheth	er the sig	gnifica	.nt c	hange	in t	olood	l pre	ssure	at 1	% lev	vel of	f sig	nificanc	e.	
b	In one sam	ple of 8	observ	atio	ons the	sun	noft	he s	anare	s of	devia	ation	s of	the sam	nle valu	es from the
	-								-						-	
	sample was 84,4 and in the other samples of 10 observations it was 102.6. Test whether this difference is significant at 5% level [6M]															
5. '	5. Two random samples reveal the following results: [12M]															
	Sample Size Sample Mean Sum of squares of deviations from the mean															
	1	10		15							90					
	2	12		14							108					
	Test wheth	ner the sa	amples	car	ne fro	m tł	ne sar	me n	orma	l po	pulati	ion.				
6. '	The nicotine	in milli	grams	of t	wo sa	mple	es of	toba	icco v	vere	foun	d to 1	be as	s follow	s.	[12M]
	Sa	mple A	2	4		27		26	)	2	1		25			
	Sa	mple B	2	.7	30			28	28 31		1	22		3	6	
	Can it be	said that	the tw	/0 Sa	ample	s hav	ve co	me	from t	he s	same	norm	nal p	opulatio	on.	
7. :	a) A die is th															
	$\psi^2 = 11.$							U								[6M]
		mber	1		2		3		4		5		6			
	on	the die														
	Fre	quency	40		32		28		58		54		52			
b)	Scores obtai	ned in a	shooti	ing o	compe	titio	n by	10 s	soldie	rs be	efore	and	after	· intensi	ve traini	ing are
	given below	:														[6M]
		Bet	fore	67	24	57	55	63	54	56	5 68	8 3	33	43		
		Aft	er	70	38	58	58	56	67	68	3 7:	5 4	42	38		
	Test whaths	m tha int	anairra	trai			aful a		05 lav		fair	ifico				
8	Test whether the intensive training is useful at 0.05 level of significance. 8. a) Find the maximum difference that we can expect with probability 0.95 between the mean of															
0.								-		-		•				ound to be 2
	and 2 man	1 51205 I	U and	1 - 1	i oni a	101	ւսաւի	opu	auton		non s	unu	uru (			

- and 3 respectively. [6M] b) The following table gives the classification of 100 workers according to sex and nature of work. Test whether the nature of work is independent of the worker ( $\psi^2 = 3.84$  at 1d.f)
  - [56M]

	Stable	Unstable	Total		
Males	40	20	60		
Females	10	30	40		
Total	50	50	100		

9. a) Samples of two types of electrical light bulbs were tested for length of life and following data were obtained [6M]

	Type I	Type II
Sample numbers	8	7
Sample mean	1234 hrs	1036 hrs
Sample S.D	36 hrs	40 hrs

Is the difference in the means sufficient to warrant that type I is superior to type II regarding length of life

- b) The number of automobile accidents per week in a certain community are as follows: 12, 8, 20, 2, 14, 10, 15, 6, 9, 4. Are these frequencies in agreement with the belief that accident conditions were the same during this 10 week period.
- 10. From the following data, find whether there is any significant liking in the habit of taking soft drinks among the categories of employees.

Employees

Soft Drinks Clerks Teachers Officers 25 65 10 Pepsi 15 30 65 Thumsup 50 60 30 Fanta

[12M]