Final Exam Paper: - Bio Statistics



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Department Allied Health Sciences

Degree BS (MLT)

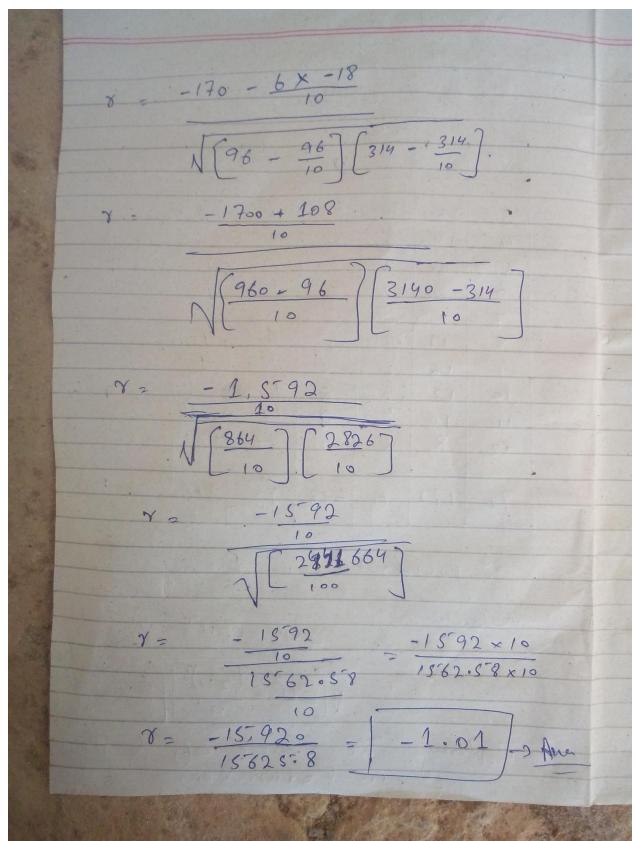
Semester 6th

(a) Calculate the correlation coefficient between X and Y.

Price (X)	3	4	5	6	7	8	9	10	11	13
Demand(Y)	25	24	20	20	19	17	16	13	10	8

> Solution:-

let	3. 00	U V=	= >	- n/s) =>	U= V=	X-7 y-19	
			0	/2			U	
		V		, 1		1		
	X	Y	u	V	U2	V2	UV.	
		0.16		6	, ,	0.0	211	
	3	25	-4		16	36	-24	
3	5		-3	5	4	1	-2	
	6	20	-1.		1	1	-1	
	7	19	0	0	0	0	0	
	8	17	1	-2	9	4	=2	
	9	16	2	-3	9	9	-6	
	10	1.3	3 4	- 6	9.	The same of the sa	-18	
	11	10	9	-9	16	100	- 36	
	13	8	6	- 11	36	121	-66	
				1	101	1011	17	
	76	172	6	-18	96	314	-1+0	
	1	-		1				
	0	T. v.m	.00:	. IF	or 1	Fin div	y o	
	0	FOrm					V	
	1 2) 0		/	1	611)	(20)/n	
	No	~ ,	_	2	uv - (Zun	0 1/11)	-
				TC	- 1	4,12][Zv2-1	(EV)
				1/2	u -	201	120-	n
	1	1. 0	- U	0	12 Que	61) tal	ole.
	Put.	ting	th	e	, unu	000		



(b) Given the following set of values.

X	20	11	15	10	17	18	21	25	28
Y	5	15	14	17	8	9	12	16	18

- (a) Determine the equation of the least squares regression line of Yon X and X on Y.
- (b) Find the predicted values of Y for X = 20, 11,15,25,28 and X for Y = 5,15,9,12,16,18.

> Solution:-

,	2 - 8 (2)	,						
	×	V	2011	2	1			
	20	2		x2	· y ²			
	11.		100	400	25			
	15	15-	165	121	325			
	10		210	225	196			
		17	170	100	289			
	17		306	288	64	,		
	18	9	162	32.4	81	1000		
	21	12		441	144			
	25	16		625	258			
	28	18,	504	784	324			
	165	119	2269	3309	1604			
		1						
00.	Le re	SNOSC	1000	, k	01	4		
	c is	1)		T, acorr	on ob	100		
		4	- a +	bx				
=>	b=	n 4	×4 -	12x 5	- 4			
		26	x2 - (2x12	19			
	1 8 1 050				111			
=)	b 2	9 (2	269)	- (165	1(119)			
		9	(3309)-(16	5-)2			
E)	=> b = 20421 - 18810 = 1611							
	29781 - 27225 2556							
1			12	$\rightarrow \bigcirc$		-		
=)	D =	0	655					
			SA A SA					
			THE RESERVE TO STATE OF THE PARTY OF THE PAR	CONTRACTOR OF THE PARTY OF THE	DESCRIPTION OF THE PERSON OF T	BURNET TOTAL		

a = {y - b ({x) a = 114 - 0.63 (165) 0 = 19.66 - 0,63 (18.33) 9 = 12.66 - 11.85 9 = 1.11 of Thus regression En x on x= a+b.y bonをxy-をxをy n 2 y2 - (2 y)2 b= 9(2269) - (165-)(144) 9 (1604) - (114)2 20421-18810 14436 - 12396 b = 1611

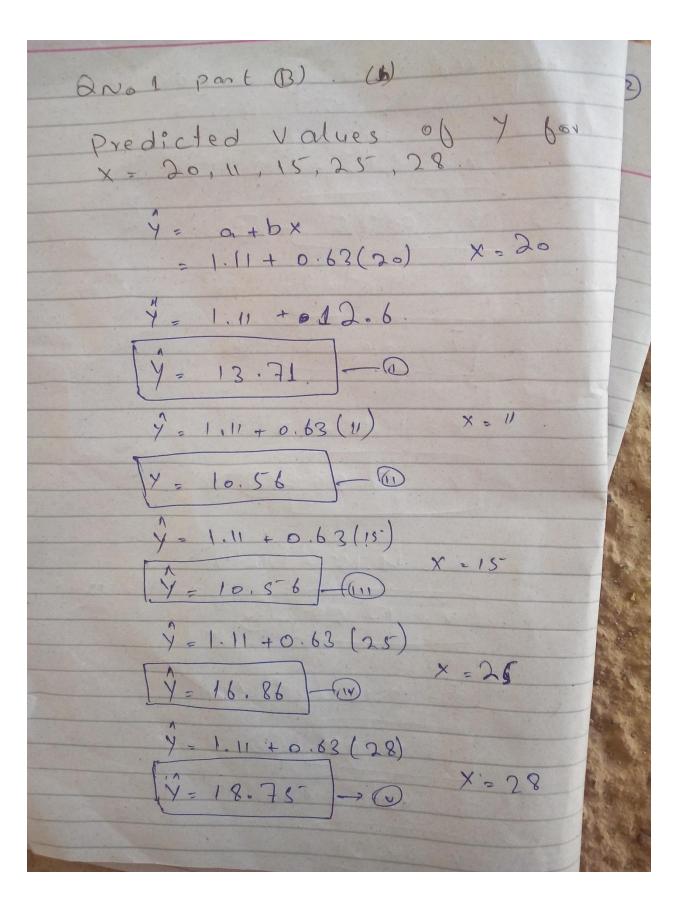
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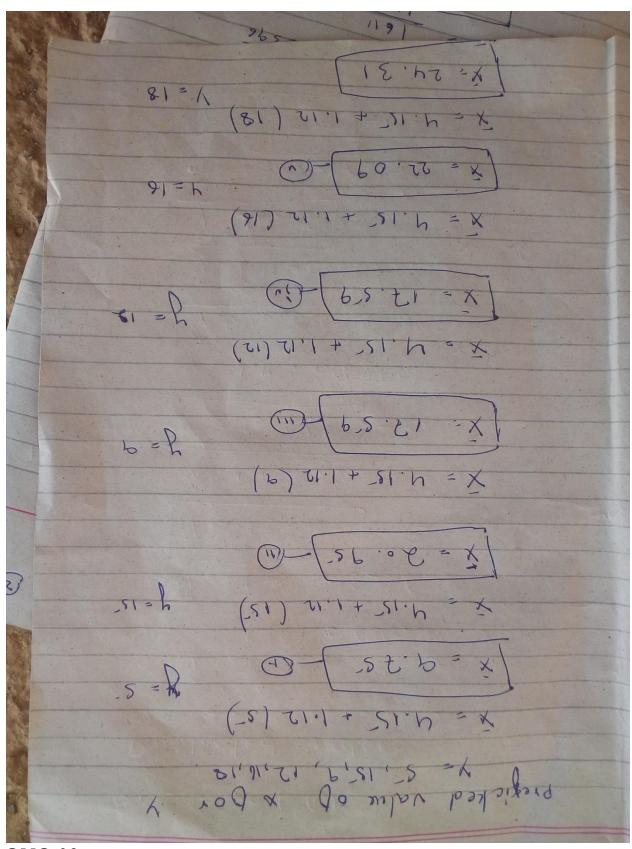
ne of x of on y

x = a + by

x = 4.15 + 1.12 y

x = 5.27. Part (a).





QNO.02

Find the following

(a) A fair coin is tossed 5 times. Find the probabilities of obtaining various numbers of heads.

Answer:-

Lets us regard the tossing of a coin as exporimeency then we observe that

- Each toss of coin has two possible outcomes head and fail.
- The probability of a head (success) is P=1/2 and the teamaker the some for successive tosses
- The successive tosses of the coin independent.
- The coin is tossed 5 times.
 - Therefore the r.v.x which denote the member of head (success) has a binomial probability destruction with P=1/2 and n=5 the possible value of as are 0,2,3,4 and 5 hence.
 - (b) A and B play a game in which A,s probability of winning is 2/3. In a series of 10 games, what is the probability that A will win(i) at least 4 games, (ii) Exactly equal to 4/10 games.
 - (iii) Exactly equals to 11 games (iv) 6 or more games.

$$\begin{cases}
\frac{5}{5} \left(\frac{1}{2}\right)^{5} \left(\frac{1}{2}\right)^{5} = 1 \times \left(\frac{1}{2}\right)^{5} \frac{1}{3}
\end{cases}$$

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\end{cases}$$

$$\begin{cases}
\frac{5}{1} \left(\frac{1}{2}\right)^{5} \left(\frac{1}{2}\right)^{5} = 5 \times \left(\frac{1}{2}\right)^{5} = \frac{5}{3}
\end{cases}$$

$$\begin{cases}
\frac{5}{1} \left(\frac{1}{2}\right)^{5} \left(\frac{1}{2}\right)^{5} = 1 \times \left(\frac{1}{2}\right)^{5} = \frac{10}{3}
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\end{cases}$$

Probability can also be obtain by (Page 1)

expandent the binomial (1/2 + 1/2) is

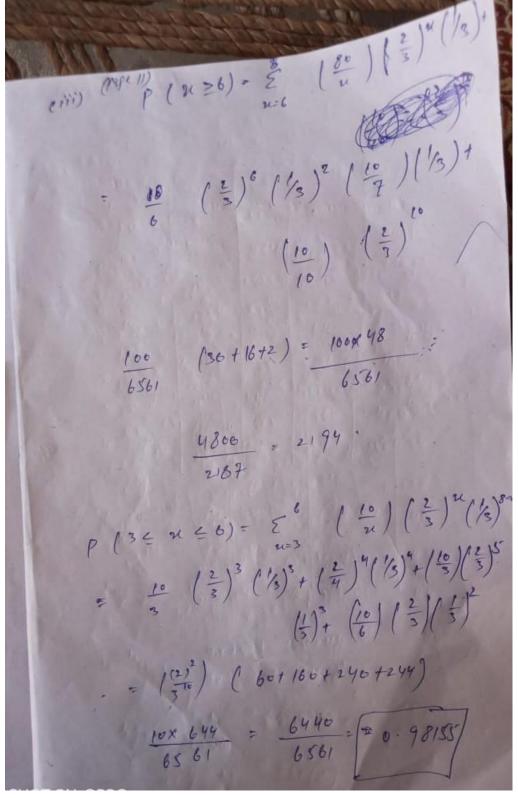
the binomial P, of for number

of biris asin in 5 tosses

of pair asin is:

of pair asin is:

Ans (b) A will win or will not will and will will wind > probability : A with = 10 games. =) Successive game won & last in dependly (1) P(91=4) = 10 (=)4 (1/3) = 1128 = 0.1996 (11) P(21>4) = 1-P (2124): Montagen 400 more = 1 = E (10) (2) 2 / 1/3) 8-11 = 1- [(/3) +10 [=] [/3] +28 (2/3)2 (1/3) +56 (3/3) (/3) 1- 65-61 (10+ 16+28+448) TON OPPOIT 577 = 5784 = [0.9121]



Q.No. (03)

The following figures give the number of children born to 50 women

	σ	U							
2	6	1	5	4	3	3	8	10	1

4	3	3	0	5	2	1	4	10	3
5	3	3	6	3	3	2	2	7	4
1	4	2	4	4	4	6	8	10	7
7	5	6	5	3	2	3	9	2	2

- (a) Construct the ungrouped frequency distribution of these data.(b) Construct the grouped frequency distribution of these data

Solution:-

2 No 3 part (a):

(0	26	1	5	4	3	3	8	10	1	1
14	3	3			2		4	10	2	Account to
5	- 3	3	6	3	3	2	2	7	4	THE PARTY AND ADDRESS OF
1	4	1	4	4	81	6	8	10	7	
17	5	6	5	1	2	3	9	2	2.	

Con compled Frequency

distribution

	3.5.5	1.3 4	The stance	C. Fred Lorins	
	No	Tolly Marles	Frequency		
	0	,		1	
	1	eich	4	5-	
	2	+111 111	8	13	
	3	H +17 1	4011	24	
- Company	4	ATT 111	8	32	
	5	1111	5	37	
	6	1713	4	41	
	7	11	3	44	1
	8	11	2	46	
	9	1	1	MI	
	10	111	3	50	
100	The second secon	THE RESERVE OF THE PARTY OF THE	THE PERSON NAMED IN COLUMN TWO	THE RESERVE OF THE PARTY OF THE	THE RESERVE OF THE PARTY OF THE

Q No 3: (6) Give information of children brown 4 3 3 0 5 2 1 4 10 3 1 42444 6 8 10 3 7 5 6 5 3 2 3 9 2 group Frequency distribution bor give data N. 50 data. R= 10-1 [9] K=1+3.3 Long N - 1 + 3.3 loxy (50) - 1 - 3-3 (1.698).

K = 1 + 5-6066 1c = 6.606 = 7K=6 0 h = class internual = Rang. h= 9 = 1.285 = [2] - 0 De Find out the informalution boom data. 85

N=50, R=9, K=6, h=2

Classes	Frequency	dossbonding	Main poid
0-1	3-,	0.5-1.5	REFUE
2-3	19	1.5-3.5	2.5
4-5	13	35-5.5	4.5
0-7.	7.	55-7.5	6.5
8-9	3	7.5 - 9.5	8.5
10-11	13	10.5-11.5.	3 11

Total = 50.

10:			
R. Frequency	R. Frency	C.F	R.C.F
	5/501100=0	5	3/10 - 0'
19/50	17/50x 100=38	24	27/50 =0
13/50	13/501/00=26		37/50 = 0
7150	7/50 ×100=14	44	44/50 =0
3/50	3/50 × 100=6	47	47/50 = 0
3/5-	3/50×100=6	50	50/50=D