



Exam	Midterm	Model	C	
Course name	Inferential Statistics Third year	time	30 minutes	



Choose the correct answers:

The production department wants to study the relationship between demand and the number of production units during a specific month, given that the variables follow a normal distribution:

Demand	100	120	140	160	180	200	220	240	260	280
Production units	280	270	290	260	275	250	265	240	255	230

- The appropriate correlation coefficient between the two variables
(A) Spearman (B) Cramer V (C) Chi-square (D) Pearson
- Calculate the appropriate correlation coefficient between the variables
(A) 0.871 (B) 0.759 (C) 0.375 (D) -0.812
- The direction and strength of the relationship between variables
(A) positive intermediate (B) negative strong (C) negative weak (D) positive strong
- Find the value of (T_{crit}) to test the significance of the correlation coefficient
(A) 3.792 (B) 1.144 (C) 4.297 (D) -3.935
- The critical or tabulated value for testing the significance of the correlation coefficient at a significance level of 0.05
(A) 2.8965 (B) 2.3060 (C) 2.8214 (D) 3.3554
- What is the decision for testing the significance of the correlation coefficient at a significance level of 0.05?
(A) The correlation coefficient is insignificant ($\rho \neq 0$) (B) The correlation coefficient is significant ($\rho \neq 0$)
- The value of the regression coefficient B_1 of the demand for products
(A) 1.184 (B) 0.721 (C) 1.418 (D) -0.247
- The value of the intercept B_0
(A) 6.237 (B) 1.947 (C) 308.424 (D) 78.94
- The sum of squares of regression SSR
(A) 2012.803 (B) 1065.789 (C) 395.137 (D) 1850
- The sum of squares of residuals or error SSE
(A) 784.211 (B) 2411.763 (C) 281.578 (D) 1039.697
- The total sum of squares SSTo
(A) 2806.900 (B) 1065.789 (C) 3052.500 (D) 2012.803
- The mean square of regression MSR
(A) 1065.789 (B) 395.137 (C) 98.026 (D) 87.135

- (13) The mean square of residuals MSE
 (A) 1065.789 (B) 205.556 (C) 98.026 (D) 87.135
- (14) Find the value of (F_{crit}) to test the significance of the overall regression model
 (A) 10.87 (B) 1.87 (C) 11.78 (D) 3.562
- (15) What is the decision of testing the significance of the overall regression model at a significance level of 0.05?
 (A) The regression model is insignificant (B) The regression model is significant

F Distribution Table at Level of Significance ($\alpha = 0.05$)
 Degree of Freedom for the Numerator $df(1)$

Degree of Freedom for the Denominator $df(2)$	Degree of Freedom for the Numerator $df(1)$						
	1	2	3	4	5	6	7
1	161	200	216	225	230	234	237
2	18.5	19.0	19.2	19.2	19.3	19.3	19.4
3	10.1	9.55	9.28	9.12	9.01	8.94	8.89
4	7.71	6.94	6.59	6.39	6.26	6.16	6.09
5	6.61	5.79	5.41	5.19	5.05	4.95	4.88
6	5.99	5.14	4.76	4.53	4.39	4.28	4.21
7	5.59	4.74	4.35	4.12	3.97	3.87	3.79
8	5.32	4.46	4.07	3.84	3.69	3.58	3.50
9	5.12	4.26	3.86	3.63	3.48	3.37	3.29
10	4.96	4.10	3.71	3.48	3.33	3.22	3.14

t-distribution table

Degree of Freedom (df)	Confidence Intervals						
	0.20	0.10	0.05	0.02	0.01	0.001	
	Level of significance for One-Tailed Test (Alpha)						
	0.10	0.05	0.02	0.01	0.001		
	Level of significance for Two-Tailed Test (Alpha)						
	0.20	0.10	0.05	0.02	0.01	0.0005	
1	3.0777	6.3138	12.7062	31.8205	63.6567	0.001	
2	1.8856	2.9200	4.3027	6.9646	9.9248	636.6192	
3	1.6377	2.3534	3.1824	4.5407	5.8409	31.5991	
4	1.5332	2.0150	2.7764	3.7469	4.6041	12.9240	
5	1.4759	1.9432	2.5706	3.3649	4.0321	8.6103	
6	1.4398	1.8946	2.4469	3.1427	3.7074	6.8688	
7	1.4149	1.8595	2.3646	2.9980	3.4995	5.9588	
8	1.3968	1.8331	2.3060	2.8965	3.3554	5.4079	
9	1.3830	1.8331	2.2622	2.8214	3.2498	5.0413	
10	1.3722	1.8125	2.2281	2.7638	3.1693	4.7809	
						4.5869	