



**Daffodil International University**  
**Department of Business Administration**  
**Faculty of Business and Entrepreneurship**  
**Semester Final Examination, Spring 2026**  
**Course Code: 0542-213, Course Title: Statistics for Decision Making**  
**Section: 67A-67F; Teacher's initial: UFU, Tuhin**

Time: 02:00 Hrs

Marks: 40

[Answer all the following questions. The figures in the right margin indicate the full marks and corresponding course outcomes]

1.
  - a) **Define** Critical value and Critical region with an example. (CLO 1, L 1)  
Marks: 2
  - b) **Demonstrate** the difference between “ $r$ ” and “ $R^2$ ”. (CLO 2, L 2)  
Marks: 3
2.
  - a) Consider the experiment of rolling a pair of 6-sided dice simultaneously and write down the Sample Space also **identify** the probability of - **i)** the sum of two dice is greater than 11; **ii)** two dice shows the same number. (CLO 3, L 3)  
Marks: 3
  - b) A survey of middle-aged men reveals that 28% of them are suffering from diabetes and 18% of them are suffering from a heart disease. Men having both diabetes and heart disease have 11% probability. **Utilize** appropriate rule to find the probability that a middle-aged man will not suffer from any of the diseases. (CLO 3, L 3)  
Marks: 3
  - c) The final exam score of the students of the BBA 67<sup>th</sup> Batch was found to follow a normal distribution with a mean of 22 and a variance of 25. **Calculate** the probability that- (CLO 3, L 3)  
Marks: 4  
**i)** the score of a student will be more than 30; **ii)** the score will be between 20 to 25.
3. Suppose, the electricity bill of month March of 6 households are given below with ‘how many hours the members usually use electricity and how many hours they used to stay outside of house’.

<b>Electricity Bill (BDT)</b>	<b>1480</b>	<b>890</b>	<b>560</b>	<b>110</b>	<b>124</b>	<b>730</b>
<b>Hours of usage</b>	<b>18</b>	<b>12</b>	<b>8</b>	<b>15</b>	<b>13</b>	<b>10</b>
<b>Hours outside</b>	<b>2</b>	<b>8</b>	<b>14</b>	<b>6</b>	<b>6</b>	<b>5</b>

  - a) **Construct** two scatterplots of ‘Bill vs hours of usage’ and ‘Bill vs hours outside’ and comment on your findings. (CLO 3, L 3)  
Marks: 3
  - b) **Develop** an estimated regression model between ‘Electricity bill’ and ‘hours outside’ and interpret the values of the regression coefficients. (CLO 3, L 3)  
Marks: 5
  - c) **Make use of** “Goodness of fit” of the model and explain your result. (CLO 3, L 3)  
Marks: 5
4.
  - a) In the city of Khulna, the probability that a person dies due to a snake bite is 0.0002. If the total population of the city is 15,000, **Apply** Poisson Distribution formula to find the probability that exactly three people die from snake bites in that city. (CLO 3, L 3)  
Marks: 3

P.T.O.

- b)** Probability that Food-panda can deliver the food on time is 70%. if 6 orders are ready to deliver, **calculate** the probability that, **i)** exactly 3 orders will be delivered on time **ii)** At least five orders will be delivered on time **iii)** find the mean and variance of the distribution. (CLO 3, L 3)  
*Marks:4*
- c)** An online medicine shop claims that the mean delivery time for medicines is 120 minutes with a standard deviation of 30 minutes. Is there enough evidence to support this claim if 49 orders were examined with a mean of 100 minutes? **Test for** 5% level of significance. (CLO 4, L 4)  
*Marks:5*

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	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.0000	0.0040	0.0080	0.0120	0.0160	0.0199	0.0239	0.0279	0.0319	0.0359
0.1	0.0398	0.0438	0.0478	0.0517	0.0557	0.0596	0.0636	0.0675	0.0714	0.0753
0.2	0.0793	0.0832	0.0871	0.0910	0.0948	0.0987	0.1026	0.1064	0.1103	0.1141
0.3	0.1179	0.1217	0.1255	0.1293	0.1331	0.1368	0.1406	0.1443	0.1480	0.1517
0.4	0.1554	0.1591	0.1628	0.1664	0.1700	0.1736	0.1772	0.1808	0.1844	0.1879
0.5	0.1915	0.1950	0.1985	0.2019	0.2054	0.2088	0.2123	0.2157	0.2190	0.2224
0.6	0.2257	0.2291	0.2324	0.2357	0.2389	0.2422	0.2454	0.2486	0.2517	0.2549
0.7	0.2580	0.2611	0.2642	0.2673	0.2704	0.2734	0.2764	0.2794	0.2823	0.2852
0.8	0.2881	0.2910	0.2939	0.2967	0.2995	0.3023	0.3051	0.3078	0.3106	0.3133
0.9	0.3159	0.3186	0.3212	0.3238	0.3264	0.3289	0.3315	0.3340	0.3365	0.3389
1.0	0.3413	0.3438	0.3461	0.3485	0.3508	0.3531	0.3554	0.3577	0.3599	0.3621
1.1	0.3643	0.3665	0.3686	0.3708	0.3729	0.3749	0.3770	0.3790	0.3810	0.3830
1.2	0.3849	0.3869	0.3888	0.3907	0.3925	0.3944	0.3962	0.3980	0.3997	0.4015
1.3	0.4032	0.4049	0.4066	0.4082	0.4099	0.4115	0.4131	0.4147	0.4162	0.4177
1.4	0.4192	0.4207	0.4222	0.4236	0.4251	0.4265	0.4279	0.4292	0.4306	0.4319
1.5	0.4332	0.4345	0.4357	0.4370	0.4382	0.4394	0.4406	0.4418	0.4429	0.4441
1.6	0.4452	0.4463	0.4474	0.4484	0.4495	0.4505	0.4515	0.4525	0.4535	0.4545
1.7	0.4554	0.4564	0.4573	0.4582	0.4591	0.4599	0.4608	0.4616	0.4625	0.4633
1.8	0.4641	0.4649	0.4656	0.4664	0.4671	0.4678	0.4686	0.4693	0.4699	0.4706
1.9	0.4713	0.4719	0.4726	0.4732	0.4738	0.4744	0.4750	0.4756	0.4761	0.4767
2.0	0.4772	0.4778	0.4783	0.4788	0.4793	0.4798	0.4803	0.4808	0.4812	0.4817
2.1	0.4821	0.4826	0.4830	0.4834	0.4838	0.4842	0.4846	0.4850	0.4854	0.4857
2.2	0.4861	0.4864	0.4868	0.4871	0.4875	0.4878	0.4881	0.4884	0.4887	0.4890
2.3	0.4893	0.4896	0.4898	0.4901	0.4904	0.4906	0.4909	0.4911	0.4913	0.4916
2.4	0.4918	0.4920	0.4922	0.4925	0.4927	0.4929	0.4931	0.4932	0.4934	0.4936
2.5	0.4938	0.4940	0.4941	0.4943	0.4945	0.4946	0.4948	0.4949	0.4951	0.4952
2.6	0.4953	0.4955	0.4956	0.4957	0.4959	0.4960	0.4961	0.4962	0.4963	0.4964
2.7	0.4965	0.4966	0.4967	0.4968	0.4969	0.4970	0.4971	0.4972	0.4973	0.4974
2.8	0.4974	0.4975	0.4976	0.4977	0.4977	0.4978	0.4979	0.4979	0.4980	0.4981
2.9	0.4981	0.4982	0.4982	0.4983	0.4984	0.4984	0.4985	0.4985	0.4986	0.4986
3.0	0.4987	0.4987	0.4987	0.4988	0.4988	0.4989	0.4989	0.4989	0.4990	0.4990

<b>TABLE A-3</b>		<b>t Distribution: Critical t Values</b>				
	0.005	0.01	Area in One Tail			
			0.025	0.05	0.10	
Degrees of Freedom	Area in Two Tails					
	0.01	0.02	0.05	0.10	0.20	
1	<b>63.657</b>	31.821	<b>12.706</b>	6.314	3.078	
2	<b>9.925</b>	6.965	<b>4.303</b>	2.920	1.886	
3	<b>5.841</b>	4.541	<b>3.182</b>	2.353	1.638	
4	<b>4.604</b>	3.747	<b>2.776</b>	2.132	1.533	
5	<b>4.032</b>	3.365	<b>2.571</b>	2.015	1.476	
6	<b>3.707</b>	3.143	<b>2.447</b>	1.943	1.440	
7	<b>3.499</b>	2.998	<b>2.365</b>	1.895	1.415	
8	<b>3.355</b>	2.896	<b>2.306</b>	1.860	1.397	
9	<b>3.250</b>	2.821	<b>2.262</b>	1.833	1.383	
10	<b>3.169</b>	2.764	<b>2.228</b>	1.812	1.372	
11	<b>3.106</b>	2.718	<b>2.201</b>	1.796	1.363	
12	<b>3.055</b>	2.681	<b>2.179</b>	1.782	1.356	
13	<b>3.012</b>	2.650	<b>2.160</b>	1.771	1.350	
14	<b>2.977</b>	2.624	<b>2.145</b>	1.761	1.345	
15	<b>2.947</b>	2.602	<b>2.131</b>	1.753	1.341	
16	<b>2.921</b>	2.583	<b>2.120</b>	1.746	1.337	
17	<b>2.898</b>	2.567	<b>2.110</b>	1.740	1.333	
18	<b>2.878</b>	2.552	<b>2.101</b>	1.734	1.330	
19	<b>2.861</b>	2.539	<b>2.093</b>	1.729	1.328	
20	<b>2.845</b>	2.528	<b>2.086</b>	1.725	1.325	
21	<b>2.831</b>	2.518	<b>2.080</b>	1.721	1.323	
22	<b>2.819</b>	2.508	<b>2.074</b>	1.717	1.321	
23	<b>2.807</b>	2.500	<b>2.069</b>	1.714	1.319	
24	<b>2.797</b>	2.492	<b>2.064</b>	1.711	1.318	
25	<b>2.787</b>	2.485	<b>2.060</b>	1.708	1.316	
26	<b>2.779</b>	2.479	<b>2.056</b>	1.706	1.315	
27	<b>2.771</b>	2.473	<b>2.052</b>	1.703	1.314	
28	<b>2.763</b>	2.467	<b>2.048</b>	1.701	1.313	
29	<b>2.756</b>	2.462	<b>2.045</b>	1.699	1.311	
30	<b>2.750</b>	2.457	<b>2.042</b>	1.697	1.310	
31	<b>2.744</b>	2.453	<b>2.040</b>	1.696	1.309	
32	<b>2.738</b>	2.449	<b>2.037</b>	1.694	1.309	
34	<b>2.728</b>	2.441	<b>2.032</b>	1.691	1.307	
36	<b>2.719</b>	2.434	<b>2.028</b>	1.688	1.306	
38	<b>2.712</b>	2.429	<b>2.024</b>	1.686	1.304	
40	<b>2.704</b>	2.423	<b>2.021</b>	1.684	1.303	
45	<b>2.690</b>	2.412	<b>2.014</b>	1.679	1.301	
50	<b>2.678</b>	2.403	<b>2.009</b>	1.676	1.299	
55	<b>2.668</b>	2.396	<b>2.004</b>	1.673	1.297	
60	<b>2.660</b>	2.390	<b>2.000</b>	1.671	1.296	
65	<b>2.654</b>	2.385	<b>1.997</b>	1.669	1.295	
70	<b>2.648</b>	2.381	<b>1.994</b>	1.667	1.294	
75	<b>2.643</b>	2.377	<b>1.992</b>	1.665	1.293	
80	<b>2.639</b>	2.374	<b>1.990</b>	1.664	1.292	
90	<b>2.632</b>	2.368	<b>1.987</b>	1.662	1.291	
100	<b>2.626</b>	2.364	<b>1.984</b>	1.660	1.290	
200	<b>2.601</b>	2.345	<b>1.972</b>	1.653	1.286	
300	<b>2.592</b>	2.339	<b>1.968</b>	1.650	1.284	
400	<b>2.588</b>	2.336	<b>1.966</b>	1.649	1.284	
500	<b>2.586</b>	2.334	<b>1.965</b>	1.648	1.283	
750	<b>2.582</b>	2.331	<b>1.963</b>	1.647	1.283	
1000	<b>2.581</b>	2.330	<b>1.962</b>	1.646	1.282	
2000	<b>2.578</b>	2.328	<b>1.961</b>	1.646	1.282	
Large	<b>2.576</b>	2.326	<b>1.960</b>	1.645	1.282	