King Saud University

College of Business Administration

Department of Quantitative Analysis

Second Midterm Exam

(QUA107/ Introduction to Statistics in Business)

Name:	ID:
Serial Number:	Section:

For each question choose one answer from the given choices A, B, C, D or state another answer under E, and then put the chosen letter very carefully on the following table:

Question's No.	1	2	3	4	5	6	7	8	9	10
Chosen letter	A	D	C	A	D	C	D	C	C	D
Question's No	11	12	13	14	15	16	17	18	19	20
Chosen letter	C	A	D	C	D	C	C	B	C	D

Use the following data to answer questions 1 to 3:
A random sample of 500 respondents was selected to study the attitude about shopping for clothing. The results of this study are summarized in the following cross-classification table:

Enjoys Shopping for Clothing	Gender		Total
	Male	Female	
Yes	136	224	360
No	104	36	140
Total	240	260	500

Suppose that a respondent is chosen at random,

Question (1): $P(Female\ and\ Enjoys\ Shopping)$ equal:

(A) 0.448	(B) 0.072	(C) 0.208	(D) 0.272

Question (2): $P(Female)$ equal:

(A) 0.720	(B) 0.280	(C) 0.480	(D) 0.520

Question (3): $P(Enjoys\ Shopping|Female)$ equal:

(A) 0.433	(B) 0.138	(C) 0.862	(D) 0.567

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Question (4): $P(-1.24 \le Z \le 0.8)$ equal:

(A) .6806	(B) .6855	(C) .6749	(D) .7100

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Question (5): Events are independent if

A) One event occurs, none of the other events can occur at the same time.
B) The probability of their occurrence is greater than 1.
C) At least one of the events must occur when an experiment is conducted
D) The probability of one event happening does not affect the probability of another event happening.

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Question (6): A box contains four yellow balls and eight green balls, two balls are drawn at random without replacement, find:
The probability that at least one of the balls is yellow is:

(A) 60/144	(B) 80/144	(C) 120/132	(D) 76/132

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Question (7): Suppose that X has a Poisson distribution with variance equal 3. Then $P(X \le 1)$ equal:

(A) $5e^{-4}$	(B) $2e^{-1}$	(C) $3e^{-2}$	(D) $4e^{-3}$

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Question (8): Suppose that X be a normally distributed random variable, the mean of the standard normal random variable (Z) is

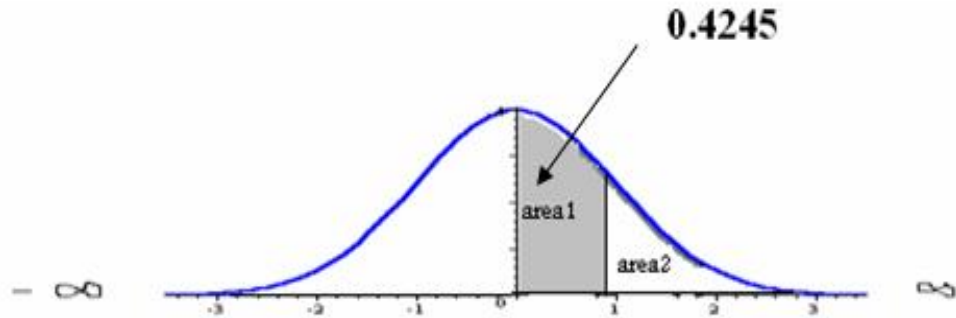| (A) 3	(B) -1	(C) 0	(D) 1

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Question (9) : Suppose that Z has a standard normal distribution and that X has a normal distribution with mean 25 and standard deviation 2. If you know that $P(Z<1.75)=.5401$ the value x equal:

| (A) 35.76 | (B) 27.88 | (C) 28.5 | (D) 48.75 |

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Question (10) : From the figure down the area under the curve for area (2) is:

| (A) 0.1544 | (B) 0.1173 | (C) 0.2355 | (D) 0.0755 |

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Question (11): Which of the following statement is not true about the normal distribution?

(A) The normal curve is symmetrical about the mean μ.
(B) The mean is at the middle and divides the area into halves.
(C) The total area under the curve is greater than 1.
(D) It is completely determined by its mean and standard deviation σ (or variance σ^2).

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Use the following data to answer questions 12 to 14 :
Suppose that the proportion of the students of class A at Business administration collage, passing Statistics exam is 0.7. Four students who took the statistics exam are selected at random.

Question (12) : The probability of no one passed the exam equals:

| (A) 0.0081 | (B) 0.2982 | (C) 0.0713 | (D) 0.3992 |

Question (13) : The probability of at least two student passed the exam equals:

| (A) 0.0056 | (B) 0.1192 | (C) 0.1522 | (D) 0.9163 |

Question (14) : The mean and standard deviation equals:

| (A) 1.2 , 5.15 | (B) 3.5 , 0.84 | (C) 2.8 , 0.92 | (D) 4.9 ,3.24 |

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Use the following data to answer questions 15 and 16 :
The following table contains the probability distribution for the number of traffic accidents daily in a small city.

Number of accidents daily (X)	0	1	2	3
Probability(P)	0.10	0.45	0.40	0.05

Question (15) : Compute the expected number of accidents per day ($E(x)$):

(A) 5.75	(B)2.3	(C)3.09	(D) 1.4

Question (16) : Find variance

(A) 13.14	(B) 4.86	(C) 0.54	(D) 6.41

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Question (17) : The normal curve represents a distribution where the

_____, _____, and _____ are equal to each other.

A.	range / standard deviation / variance
B.	mean / median / standard deviation..
C.	mean / median / mode .
D.	mode/ median / standard deviation.

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Use the following data to answer questions 23 and 24 :
Assume that the number of network errors experienced in a day on a local area network (LAN) is distributed as a <u>Poisson random variable</u>. The mean number of network errors experienced in a day is 4.

Question (18) : What is the probability that in any given day less than or equal to one network error will occur?

(A) 0.0172	(B) 0.0916	(C) 0.0467	(D) 0.1956

Question (19) : Find variance

(A) 13	(B) 2	(C) 4	(D) 6

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Question (20) : The mean of a binomial distribution depends on:

(A) Number of trials.
(B) Probability of success .
(C) Probability of failure .
(D) Number of trials and probability of success .

Z- table

	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