Seat No:_____   Enrollment No:_____

PARUL UNIVERSITY
FACULTY OF MANAGEMENT
BBA MID SEMESTER 2018 - 19 Examination

Semester: 4ᵗʰ   Date: (02/03/2019)
Subject Code: (06191256)   Time: (10:00 to 12:00)
Subject Name: Business Statistics   Total Marks: 40

Instructions
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Do as Directed.

A). Multiple choice type questions/Fill in the blanks. (Each of 1 mark) (04)
   1. The total area between a normal curve and $x - axis$ is _____
      a)0   c)1
      b)0.5   d)-0.5
   2. In a normal distribution which of the following property hold true?
      a)Mean=Median=Mode   c)Mean>Median>Mode
      b)Mean<Median<Mode   d)None of these
   3. The fixed probability for 5% level of significance is_____
      a)2.58   c)1.645
      b)1.96   d)2.33
   4. In normal distribution _____ % of observations lie between $\mu \pm 2\sigma$
      a)68.26   c)95.45
      b)99.73   d)99

B). Define the following. (Each of 1 mark) (03)
   1. Define Null Hypothesis & Alternative hypothesis.
   2. Define Type-1 Error.
   3. Define Parameter and statistics.

C). Direct questions. (Each of 1 mark) (03)
   1. Find area between $Z = -1 \; and \; Z = 2.4$ using standard normal values of Z.

   2. The quartiles of a normal distribution are respectively 8.64 and 14.32, Find mean and standard deviation of the distribution.

   3. Write down the names of methods for random sampling.

Q.2 Answer the following questions.

A). A sample of 400 students has a mean height of 171.38cms. Can it be reasonably regarded as a random sample from a large population with mean height 171.17cm and standard deviation 3.3 cms? (05)

B). The mean and standard deviation of marks of 500 students in an examination are 52 and 8 respectively. If the marks are normally distributed, find
(i) The number of students getting marks more than 60. (ii) The number of students getting marks between 48 and 56. (05)

Q.3 Answer the following questions.

A). State the properties of a normal distribution. (05)

B). For studying a characteristic the observations of a population are 5, 9, 11, 19 . How many random sample of size 2, without replacement can be taken from it? Making a list of all the samples verify the following results: (07)

(i) $E(\bar{y}) = \bar{Y}$ (ii) $V(\bar{Y}) = (\frac{N-n}{N})\frac{S^2}{n}$ (iii) $E(s^2) = S^2$

Q.4 Attempt any two questions. **(Each of 4 marks)** (08)

1. Give the difference between sample survey and population survey.

2. 10 observations of a population are divided into two strata as follows:
Stratum 1: 1 3 5 8 10 15
Stratum 2: 16 22 24 26
Sample of size 3 is taken from the first stratum and that of size 2 is taken from the second stratum, find $V(\bar{y}_{st})$.

3. The average life of 150 electric bulbs of a company A is 1400 hours with a S.D. of 120 hours while the average life of 200 electric bulbs of company B is 1200 hours with a S.D. of 80 hours. Is the difference between the average lives of the bulbs significant?
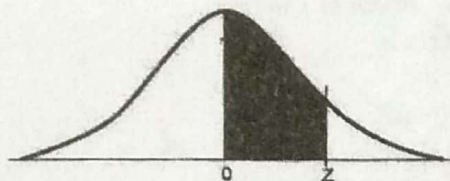
This table presents the area between the mean and the Z score. When Z=1.96, the shaded area is 0.4750.

Areas Under the Standard Normal Curve

z	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	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
0.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2517	.2549
0.7	.2580	.2611	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4979	.4980	.4981
2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.4987	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990
3.1	.4990	.4991	.4991	.4991	.4992	.4992	.4992	.4992	.4993	.4993
3.2	.4993	.4993	.4994	.4994	.4994	.4994	.4994	.4995	.4995	.4995
3.3	.4995	.4995	.4995	.4996	.4996	.4996	.4996	.4996	.4996	.4997
3.4	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4998
3.6	.4998	.4998	.4999	.4999	.4999	.4999	.4999	.4999	.4999	.4999
3.9	.5000									