

GUJARAT TECHNOLOGICAL UNIVERSITY
BPLAN- SEMESTER- 1 EXAMINATION – SUMMER 2016

Subject Code: 1015504**Date: 03/06/2016****Subject Name: Statistical and Quantitative Methods in Planning-I****Time: 02.30PM-04.30PM****Total Marks: 50****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1 (a) Fill in the blanks **05**

- 1) The total value of probability is always_____.
- 2) The values of variance can be_____, _____ or _____.
- 3) The mean is ratio of _____
- 4) The probability of $p(A \cap B)$ is _____.
- 5) The binominal probability distribution given by_____.

(b) Short questions **05**

- 1) What is skewness?
- 2) What is kurtosis?
- 3) What is open end question?
- 4) How data are present in statistic?
- 5) What is poisson distribution?

Q.2 (a) How questionnaire design for collection of data? **05**

(b) List out type of sample and Explain simple random sampling and stratified sampling. **05**

OR

(b) What is statistical data? How statistical data are collect. **05**

Q.3 (a) The data of CO emission (in tons) from a commercial zone is classified as under. Calculate mean and variance of daily CO emissions. **05**

Class	5-9	9-13	13-17	17-21	21-25	25-29	29-33
Frequency	3	10	14	25	17	9	2

(b) Average house hold income per year and its standard deviation in two cities are as under. Find out which city has less income disparity? **05**

City	Annual income (Rs.)	Standard Deviation (Rs.)
X	4,50,000	45,000
Y	3,60,000	37,500

OR

Q.3 (a) Find out co efficient variance from the following data: **05**

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No of Students	12	18	35	42	50	45	20	8

(b) Explain Mean, Arithmetic mean and Geometric mean. **05**

Q.4 (a) Explain variation in Time series. **05**

(b) Explain Trend analysis **05**

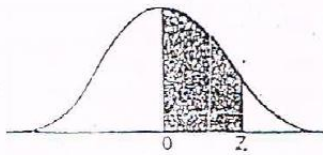
OR

Q.4 (a) Consider the data for the number of ships loaded at City-A between 1988 and 1995. Find the equation that describe the secular trend of loading. **05**

Year	1988	1989	1990	1991	1992	1993	1994	1995
Ship loaded	98	105	116	119	135	156	177	208

- (b) Income distribution of individuals in city zone are observed as $x = 500$ and $\sigma = 100$ Rs. Find the probability that an individual selected randomly has an income between Rs. 550-650. **05**
- Q.5** (a) Five defective bolts are accidentally mixed with twenty good one. If four bolts are drawn at random from this lot find the probability distribution of the number of defective bolts. **05**
- (b) Find the probability of getting a Queen or a spade card from playing card pack. **05**
- OR**
- Q.5** (a) An urn contains 5 white and 8 black balls. Two successive drawing of three balls at a time are made such that the balls are not replace before the second draw. Find the probability that the first draw gives 3 white balls and second gives 3 black balls? **05**
- (b) A bus on particular route departs its original terminus on time with probability of 0.77. The bus arrives at its destination on time (irrespective of departure time) with probability of 0.81. Also, the probability that a bus arrives on time, given that departs on time is 0.91. Find the probability that a bus depart on time given that it arrives on time. **05**

VII. AREA UNDER STANDARD NORMAL CURVE



$z \rightarrow$	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.0000	.0040	.0080	.0120	.0160	.0199	.0239	.0279	.0319	.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	.4947	.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