3/121 **1701E1189** Candidate's Seat No :_____

MBA in BEPF/PP/EM Sem.-1 Examination

EPF/PPM/EM-102

QA

Time : 2-30 Hours] **January-2025** **[Max. Marks : 70**

Q1 Three types of chemcials are used on three groups of plants for 10 weeks. We want to check if there is a difference in the mean growth of each group. Using the data given below apply a one-way ANOVA test at 0.05 significant level. (14)

Group 1	Group 2	Group 3
5	8	13
7	12	9
8	9	11
7	11	8
9	6	7
3	8	12

F (0.05) = 3.68

Q2 Resting heart rate is known to be 71 beats per minute on average, with a standard deviation of 4 beats per minute. A set of researchers believe that heart rate will increase in men when they are waiting to go in to a job interview. To test this hypothesis, a group of 9 men attending job interviews are fitted with a wireless heart rate monitor to wear on their chest in the hour preceding their interviews. Their average heart rates over this hour are shown in the table below. (14)

Participant	Heart rate (bmp)
1	80
2	74
3	73
4	72
5	78
6	75
7	70
8	74
9	69

a) Should a z-test or a t test be used to check if there is significant evidence to suggest heart rate increases in men while they are waiting to attend a job interview?

b) Conduct the test at the 5% level and interpret your result

(Z test tabulated value = 1.645 and T test tabulated value =1.860)

Or

(P.T.O)

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Q2 An IQ Test was administered to 5 persons Before and after they were trained. The Results were given below: (14)

Candidate	1	2	3	4	5
IQ Before Training	110	120	123	132	125
IQ After Training	120	118	125	136	121

Test whether there is any change in IQ After training. (t=3.182)

Q3 A factory produces widgets. The probability of producing a defective widget is 0.05. In a batch of 200 widgets: (14)
(a) What is the expected number of defective widgets?
(b) Calculate the probability of finding exactly 5 defective widgets using the Poisson distribution.

Or

Q3 The hourly wages of 1,000 workmen are normally distributed around a mean of Rs.70 with a standard deviation of Rs.5. Estimate the number of workers whose hourly wages will be: (14)
(i) Between Rs. 69 and Rs.75
(ii) Less than Rs. 60

Q4 A businessman has three alternatives open to him which are associated with four possible events. The pay-off matrix for each combination of act and event in given below: (14)

Payoff table:

		Acts	
Events	a1	a2	a3
E1	8	-4	14
E2	0	12	6
E3	10	18	9
E4	6	-2	8

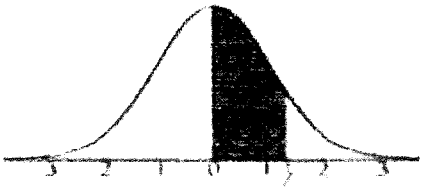
Determine which alternative the businessman would select, if he adopts the following principles of decision making:
a) Maximax
b) Maximin
c) Laplace
d) Hurwicz (alpha=0.6)
e) Minimax Regret

Or

Q4 An MBA graduate is considering two career paths: (14)
1. Consulting, with a probability of earning Rs 120,000 (0.5) or Rs. 80,000 (0.5).
2. Entrepreneurship, with a probability of earning Rs. 150,000 (0.4) or Rs. 50,000 (0.6).

Using expected monetary value, determine the preferred career path. Discuss how risk aversion and non-monetary factors could influence this decision. Draw a decision tree.

Q5 Discuss the importance of statistics in business decision-making. Highlight the role of descriptive statistics and inferential statistics in analyzing business data, providing examples (14)



STANDARD NORMAL TABLE (Z)

Entries in the table give the area under the curve between the mean and z standard deviations above the mean. For example, for $z = 1.25$ the area under the curve between the mean (0) and z is 0.3944

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	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	0.2969	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	0.3513	0.3554	0.3577	0.3529	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	0.4757
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
3.1	0.4990	0.4991	0.4991	0.4991	0.4992	0.4992	0.4992	0.4992	0.4993	0.4993
3.2	0.4993	0.4993	0.4994	0.4994	0.4994	0.4994	0.4994	0.4995	0.4995	0.4995
3.3	0.4995	0.4995	0.4995	0.4996	0.4996	0.4996	0.4996	0.4996	0.4996	0.4997
3.4	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4997	0.4998