Seat No. : _____

DI-110

December-2025

IMBA, Sem.-VII

(IMBA in Finance (FM) / IMBA in HR and Public Administration (HRPA)/ IMBA in Business Management (BM)/ IMBA in Business Economics and Management (BEM))

MBA-102/ HR-MBA-102/ BEM-MBA-102/ FM-MBA-102 : Quantitative Analysis (QA)

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

1. Explain the concept and importance of descriptive statistics in business decision-making. **14**

2. Find the variance, skewness and kurtosis of the following distribution by the method of moments : **14**

Class Interval	0-10	10-20	20-30	30-40
Frequency	1	4	3	2

OR

2. Assume that the test scores from a college admissions test are normally distributed with the mean of 450 and a standard deviation of 100. **14**

   (a) What percentage of people taking the test score are between 400 and 500 ?

   (b) Suppose someone received a score of 630. What percentage of people taking the test score better ? What percentage score worse ?

   (c) If a particular university will not admit anyone scoring below 480, what percentage of persons taking the test would be accepted to the university ?

3. Ten young recruits were put through a strenuous physical training programme by the army. Their weights (in kg) were recorded before and after with the following results : **14**

Recruit	1	2	3	4	5	6	7	8	9	10
Weight Before	127	195	162	170	143	205	168	175	197	136
Weight After	135	200	160	182	147	200	172	186	194	141

Using 5% level of significance, should we conclude that the programme affects the average weight of young recruits ? (Tabulated value = 2.262)

OR

3. What is Yates' correction ? Find the value of Chi-square applying Yates' correction to the following data : **14**

	Passed	**Fail**	**Total**
Day classes	10	20	30
Evening classes	4	66	70
Total	14	86	100

Also state whether the association, if any, between passing in the examination and studying in day classes is significant using Chi-square test. (Tabulated value = 3.841)

4. The following table illustrates the sample psychological health ratings of corporate executives in the field of Banking, Manufacturing and Fashion retailing : **14**

Banking	41	53	54	55	43
Manufacturing	45	51	48	43	39
Fashion Retailing	34	44	46	45	51

Can we consider the psychological health of corporate executives in the given three fields to be equal at 5% level of significance ? (Tabulated value @5% significance= 3.89.)

OR

4. A company wants to study the relationship between advertising expenditure (in ₹'000) and sales revenue (in ₹'000). The data for 8 months is as follows : **14**

Month	**Advertising (X)**	**Sales (Y)**
1	10	50
2	12	55
3	14	60
4	16	65
5	18	70
6	20	75
7	22	78
8	24	82

You are required to :

(a) Find the relationship between X and Y using simple linear regression.

(b) Interpret the regression coefficients.

(c) Predict sales if advertising expenditure is ₹ 26,000.

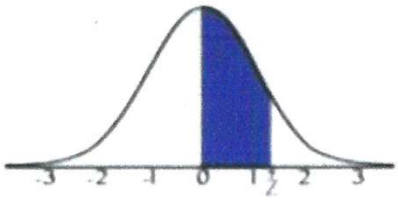
(d) Calculate and interpret the coefficient of determination (R^2).

5. The following matrix gives the payoff (in ₹) of different strategies (alternatives) S_1, S_2 and S_3 against conditions (events) N_1, N_2, N_3 and N_4. **14**

Strategy	**STATE OF NATURE**			
	N_1	**N_2**	**N_3**	**N_4**
S_1	4000	-100	6000	18000
S_2	20000	5000	400	0
S_3	20000	15000	-2000	1000

Indicate the decision taken under the following approaches :

(a) Pessimistic (b) Optimistic (c) Equal Probability (d) Regret (e) Hurwicz criteria. The degree of optimism being 0.7.



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	0.0190	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	0.4767
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
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