MBA/MBA IB (2020 & Onwards)　(Sem.–1)
QUANTITATIVE TECHNIQUES
Subject Code : MBA-103-18
M.Code : 75404

Time : 3 Hrs.　　　　　　　　　　　**Max. Marks : 60**

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A contains EIGHT questions carrying TWO marks each and students has to attempt ALL questions.**
2. **SECTIONS-B consists of FOUR Subsections : Units-I, II, III & IV. Each Subsection contains TWO questions each carrying EIGHT marks each and student has to attempt any ONE question from each Subsection.**
3. **SECTION-C is COMPULSORY and consist of ONE Case Study carrying TWELVE marks.**

SECTION-A

Answer briefly :

1. What are the limitations of statistics?

2. Define kurtosis.

3. What is scatter diagram?

4. What is probability?

5. Define Normal distribution.

6. What is saddle point?

7. Define least cost method.

8. Define assignment model.

SECTION-B

UNIT-I

9. Compute median from the following data :

Mid-value	115	125	135	145	155	165	175	185	195
Frequency	6	25	48	72	116	165	175	185	195

10. From the prices of shares of X and Y below find out which is more stable in value :

X	35	54	52	53	56	58	52	50	51	49
Y	108	107	105	105	106	107	104	103	104	101

UNIT-II

11. The ranking of 10 students in two subjects A and B are as follow :

A	6	5	3	10	2	4	9	7	8	1
B	3	8	4	9	1	6	10	7	5	2

Calculate rank correlation coefficient.

12. What is regression? Explain the relationship between correlation and regression.

UNIT-III

13. Twelve dices were thrown 4,096 times. Each 4, 5 or 6 spot appearing was considered to be a success while a 1, 2 or 3 spot was a failure. Calculate the theoretical frequencies for 0,1, 2..., 10 successes.

14. Solve the following game after reducing it to a 2×2 matrix.

Player A	Player B		
	B1	B2	B3
A1	1	7	2
A2	6	2	7
A3	5	1	6

UNIT-IV

15. Solve the following transportation problem using Vogel's Approximation Method :

Warehouse		Market				Supply
		P	Q	R	S	
	A	6	3	5	4	21
	B	5	9	2	7	16
	C	5	7	8	6	8
Demand		8	11	17	9	

16. A travelling salesman has to visit five cities. He wishes to start from a particular city, visit each city once and then return to his starting point. The travelling cost (in '000 Rs.) of each city from a particular city is given below :

		To City				
		A	**B**	**C**	**D**	**E**
From City	**A**	∞	3	6	9	2
	B	7	∞	4		3
	C	9	8	∞	5	8
	D	13	5	7	∞	6
	E	2	4	3	9	∞

SECTION-C

17. **Solve the following case study :**

Milwaukee Paper Manufacturing had long delayed the expense of installing advanced computerized air pollution control equipment in its facility. But when the board of directors adopted a new proactive policy on sustainability, it did not just authorized the budget for the state-of-art equipment. It directed the plant manager, Julie Ann Williams, to complete the installation in time for the major announcement of the policy, on the Earth Day, exactly 16 weeks away! Under strict deadline from her bosses, William needs to be sure that installation of the filtering system progresses smoothly on time. Given the following information, develop a table showing activity precedence relationships and find length of critical path.

Activity	Description	Immediate Predecessor	Duration (Days)
A	Build internal component	--	3
B	Modify roof and Floor	--	5
C	Construct collection stack	A	3
D	Pour concrete and install frame	A,B	4
E	Build high-temperature Burner	C	6
F	Install pollution control system	C	4
G	Install air pollution device	D,E	6
H	Inspect and test	F,G	7

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.