Roll No. ☐☐☐☐☐☐☐☐☐☐☐☐☐   Total No. of Pages : 04

Total No. of Questions : 17

MBA/MBA(IB) (2018 & Onwards)   (Sem.–1)
QUANTITATIVE TECHNIQUES
Subject Code : MBA-103-18
M.Code : 75404

Time : 3 Hrs.   Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A contains EIGHT questions carrying TWO marks each and students has to attempt ALL questions.
2. SECTION-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 carrying TWELVE marks.

SECTION-A

Answer briefly :

1) What are the functions of statistics?

2) Define standard deviation.

3) What is rank correlation?

4) What is regression coefficient?

5) Define Poission distribution.

6) What is duality?

7) Define transportation problem.

8) Define critical path.

SECTION-B

UNIT-I

9) An incomplete distribution is given below :

Variable	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	10	20	?	40	?	25	15

   i) You are given that the median value is 35. Find out missing frequency (given that total frequency = 170).

   ii) Calculate the arithmetic mean of the completed table.

10) From the prices of shares of A and B below find out which is more stable in value :

A	34	53	51	52	56	58	52	50	51	49
B	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	5	6	3	2	10	4	9	7	8	1
B	3	8	4	9	1	6	10	7	5	2

   Calculate rank correlation coefficient.

12) Write short note on theory of probability.

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, ..., 12 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	22
	B	5	9	2	7	15
	C	5	7	8	6	8
Demand		7	12	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 :

From City		To City				
		A	B	C	D	E
	A	∞	2	5	7	1
	B	6	∞	3	8	2
	C	8	7	∞	4	7
	D	12	4	6	∞	5
	E	1	3	2	8	∞

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 Making of passing request on any page of Answer Sheet will lead to UMC against the Student.