MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS)
MBA I Year I Semester (R18) Supplementary End Semester Examinations – AUGUST 2022
BUSINESS STATISTICS FOR MANAGERS

Time: 3Hrs   Max Marks: 60

> Attempt all the questions. All parts of the question must be answered in one place only.
> In Q.no 1 to 5 answer either Part A or Part B only. Q.no 6 which is a case study is compulsory.

Q.1(A) What are the conditions for maxima and minima? A manufacturer can sell x units per week at a price $P = 20 - 0.001x$ rupees each when it costs $C = 5x + 2000$ rupees to produce x units. Determine the number of items he should produce per week for maximum profit. Also find maximum profit?   10M

OR

Q.1(B) Solve the system of linear equations   10M
$9x + 10y + 2z = 80$, $15x + 5y + 4z = 90$, $6x + 10y + 3z = 85$

Q.2(A) In a consumer survey for the study of buying habits of a luxury item, the following data was collected. Find Mean and Median and what should be conclusion regarding buying habits   10M

Income per month (in Rs.000')	10-20	20-30	30-40	40-50	50-60	60-70	Above 70
Number of consumers	3	8	12	27	50	18	5

OR

Q.2(B) Calculate Bowley's co-efficient of Skewness for the following data.   10M

Profit (Rs.Crores)	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Number of companies	8	12	28	30	22	14	6

Q.3(A) Find rank correlation co-efficient for the following data.   10M

X	57	42	40	33	42	45	50	60	70	43
Y	60	35	40	50	55	53	70	60	80	60

OR

Q.3(B) In examination of relationship between yield of Wheat and Rainfall, the following results were obtained.   10M

	Yield	Rainfall
Mean	900kg	12 inches
S.D	80 kg	2 inches
Correlation co-efficient (r) = 0.7		

Construct Regression equations and calculate the likely yield when rainfall is 16 inches?

Q.4(A) i. State and Prove Addition theorem of Probability.   10M
        ii. A problem is given to three students A,B and C. Probabilities of solving them
        independently are 1/5, 2/3, 1/4 . if all of them try to solve the problem, what is the
        probability that the problem is solved.

OR

Q.4(B) A Television manufacturing company produces 25%, 35% and 40% of LED TV sets in   10M
        three plants P_1, P_2 and P_3 respectively. It is known that 5%, 4% and 2% of the TV sets
        produced from P_1, P_2 and P_3 are defective. If a TV set is selected at random and is
        found to be defective, What is the probability that it was produced by (i) Plant P_1
        (ii) Plant P_2

Q.5(A) If a bank receives on the average 4 bad cheques per week, what is the probability that   10M
        bank will receive (i) exactly 3 (ii) at most 2 (iii) at least 3 bad cheques per week.

OR

Q.5(B) The weekly wages of 1000 workers are normally distributed around a mean of   10M
        Rs.1900 and S.D of Rs. 200. Estimate the number of workers whose weekly wages will
        be
        (i)   between Rs 1800 and Rs 1950
        (ii)   below Rs.1850
        (iii)   above Rs 1930

Q.6   **CASE STUDY**   10M

Two brands of tyres are tested with the following results.

Life (in '000 miles)	Number of tyres	
	Brand -A	Brand -B
20-25	5	2
25-30	20	10
30-35	32	21
35-40	30	54
40-45	10	8
45-50	3	5

(a) Which brand of tyres have grater average life
(b) Compare the variability and state which brand of tyres would you use on fleet
    of trucks

END