

CDOE
MASTER OF BUSINESS ADMINISTRATION (2013 COURSE)
M.B.A. Sem-I : WINTER :- 2021
SUBJECT: STATISTICAL TECHNIQUES

Day : Monday
Date 14-02-2022

W-9958-2021

Time : 10:00 AM-01:00 PM
Max. Marks: 70

N.B.

- 1) Attempt **ANY FOUR** questions from Section – I and **ANY TWO** questions from Section – II.
- 2) Figures to the **RIGHT** indicate **FULL** marks.
- 3) Answer to both the sections should be written in **SEPARATE** answer books.
- 4) Use of non-programmable scientific calculator is allowed.
- 5) Graph papers will be provided if required.

SECTION – I

- Q.1** The Manager of a transport company engaged in pick and drop of crew members of Omega airlines wants to know the weekly distances covered by its fleet of 40 cars. The mileage recorded for the last week yielded the following data **(10)**

222	246	226	262	204	279	240	257	248	278
247	261	214	241	252	258	220	218	205	238
209	259	229	237	205	252	255	250	244	239
266	242	292	275	298	227	228	259	209	248

Construct a frequency distribution taking classes as 200-220, 220-240, etc.
 Compute Median.

- Q.2** Given the following **(10)**

Marks	20-30	30-40	40-50	50-60	60-70	70-80	80-90
No. of students	4	12	18	28	19	14	5

Find coefficient of variation.

- Q.3** a) Given probabilities $P(A) = 0.3$ $P(B) = 0.4$ and $P(A \cap B) = 0.1$. **(05)**
 Find

- i) $P(A/B)$
- ii) $P(A \cup B)$.

- b) The research department of Hindustan Lever has recommended the marketing department to launch a shampoo of three different types. The marketing manager has to decide one of the types of shampoo to be launched under the following estimated pay-offs (in millions of Rs.) for various levels of sales: **(05)**

Type of Shampoo	Estimated level of sale (units)		
	15,000	10,000	5,000
Egg Shampoo	30	10	10
Clinic Shampoo	40	15	5
Deluxe Shampoo	55	20	3

What will be the marketing manager's decision if i) Minimax and ii) Maximax criterion is applied?

P.T.O.

Q.4 Convert the following class intervals, into exclusive form :

(10)

Height in inches	Number of persons
60-64	13
65-69	15
70-74	28
75-79	17
80-84	20
85-89	7

Draw histogram and locate mode graphically.

Q.5 Write short note on **ANY TWO** of the following.

(10)

- Regression lines
- Conditional probability
- Classification and tabulation

SECTION - II

Q.6 a) The probability that a customer entering a shopping mall during a discount sale will buy a refrigerator or a TV set is 0.32. If the probability of a customer to buy a refrigerator is 0.21 and that of buying a TV set is 0.16, what is the probability that the customer will buy both, refrigerator and a TV set? Are the events of buying a refrigerator and buying a TV set independent? (08)

b) State the Baye's theorem and discuss its applications in business and management. (07)

Q.7 A sample of eight employees is taken from the production department of a light engineering factory. The data given below relate to the number of weeks, experience in the wiring of components, and the number of components which were rejected as unsatisfactory last week : (15)

Employee	A	B	C	D	E	F	G	H
Weeks of experience	4	5	7	9	10	11	12	14
Number of rejects	21	22	15	18	14	14	11	13

Obtain the least squares regression equation of rejects on experience. Predict the number of rejects you would expect from an employee with two weeks of experience.

Q.8 A purchasing agent obtained samples of lamps from two suppliers. He had the samples tested in his own laboratory for the length of life, with the following results : (15)

Length of life (in hours)	Samples from	
	Company A	Company B
700-900	10	3
900-1,100	16	42
1,100-1,300	26	12
1,300-1,500	8	3

- Which company's lamps have greater average life?
- Which company's lamps have more uniform life?