## SHRI S. H. KELKAR COLLEGE OF ARTS, COMMERCE & SCIENCE, DEVGAD BACHELOR OF MANAGEMENT STUDIES(BMS)SEM-I EXTERNAL EXAMINATION,Oct, 2023 Class:- FYBMS

SUB-BUSSINESS STATISTICS

TIME:

**DURATION:** 

Date:-

MAX. MARKS:- 75

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Sales in 1000 rs.	0-500	500-1000	1000-1500	1500-2000	2000-2500
No. Of firms	34	50	100	90	70

ii) The table below gives the frequency distribution of weights of 85 apples.

Weights in gms	110-119	120-129	130-139	140-149	150-159	160-169	170- 179	180- 189
Frequency	1	8	12	18	22	9	7	8

Determine the median and arithmetic mean.

## Q.3 Attempt any one of the following questions

[a] i) Write a note on skewness and kurtosis.

ii) Calculate the quartile deviation for the sales of 50 shops.

Sales ( in 100Rs.)	No. Of Shops	Sales( in 100 Rs.)	No. Of shops
100-110	4	130- 140	9
110-120	7	140-150	6
120- 130	20	150-160	4

OR

[b] i) The following data gives the marks (out of 100) in paper I and marks in (out of 150) in paper II in mathematics. Find the coefficient of correlation.

Marks Paper	61	68	68	64	65	70	63	62	64	65
Marks Paper	113	123	130	115	110	125	100	113	116	115

ii) The two regression line between x and y are given below find  $\overline{x}$  y and r.

100y-45x-1400=0 , 4y-5x+200=0

## Q.4 Attempt any one of the following questions

[15]

[15]

[a] i) Find the trend values for the following data giving the no. of students in commerse college using three yearly cycle.

Year	No. of student	Year	No. of student
1989	1500	1994	2000
1990	1700	1995	1980
1991	1800	1996	1900
1992	1750	1997	2200
1993	1850	1998	2200

ii) Fit trend line to the following data giving the milk production of co-operative society.

Milk (in 100 lit)	Year	Milk (in 100 lit)
20	1988	35
25	1989	38
27	1990	41
	20	20 1988 25 1989

OR

[b] i)Find the trend curve using 4 weekly moving averages for the following data .

Week	Production (1000kgs)
1	90
2	88
3	85
4	92
5	90
6	88
7	91
8	93
9	91
10	91
11	90

ii) Construct a suitable index number with the help of the following data for the year 1969

Commodity	Wheat		Rice		Gram	
year	Quantity	Price	Quantity	Price	Quantity	Gram
1965	15	14	5	20	10	4
1969	12	24	4	27	8	7

## Q.5 Attempt any one of the following questions

[15]

- [a] i) Explain the meaning of terms 1)decision theory 2) Act 3)state of nature 4)pay off
- 5) Regret value or opportunity loss
- ii) Following is the pay off matrix corresponding to four states of nature S  $_1$  , S $_2$  ,S $_3$ , S $_4$ .



State of nature	Course of ac	Probability of			
-33-3-71-7-7-7	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	A <sub>4</sub>	state
S <sub>1</sub>	50	400	-50	0	0.15
S <sub>2</sub>	300	0	200	300	0.45
S	-150	100	0	300	0.25
S <sub>4</sub>	50	0	100	0	0.15

[b] i)Prove that If S is a sample space and A,B are two events in S, then

$$P(A \cup B) = p(A) + P(B) - P(A \cup B).$$

- ii) A Card is drawn at random from well shuffle led full pack of cards .Event A& B are defined as follows 1) A is the event that the card is spade
- 2) B is the event that the card is king. Also find  $P(A \cup B)$