

Seat	
No.	

Total No of Pages: 2

B.Com (Part -II) (Semester - IV) (CBCS) Examination

March /April – 2024

College Name: - Kamala College, Kolhapur

Subject Name:-Business Statistics-II

Subject Code: 73524

Day and Date: - Saturday, 20/04/2024

Time: 02.30 pm. To 04.30 pm.

Total Marks: 50

Period: 2 hours

Total pages: 2

Instructions

- 1) Figures to the right indicate full marks
- 2) Attempt any FIVE questions.
- 3) Use of a simple calculator is allowed.
- 4) Each question carries 10 marks.



Q1) Attempt any two from the following:

- a) Explain the construction of the c-chart.
- b) Draw a neat sketch of a normal curve and state its properties.
- c) Compute the average of price relatives using arithmetic mean index number from the following data and comment on it.

Commodity	Rice	Wheat	Oil	Fish	Potato
Price in 2011	25	20	60	70	15
Price in 2021	40	34	120	140	30

Q2) Explain the need for Statistical Quality Control techniques. State the control limits for Mean and Range charts. A sample of five items is taken every two hours from a factory and the following data are obtained:

Sample No.	1	2	3	4	5	6	7	8	9	10
Mean	23	35	31	41	29	38	46	19	15	40
Range	2	9	4	2	7	3	5	6	8	5

Construct a control chart for the mean and examine whether the process is under control or not. (Given $A_2=0.58$ for $n = 5$)

Q3) Define the time series state uses. Explain the components of the time series in detail.

- Q4) Define standard normal distribution. The weights in kg. of 1000 students are normally distributed with mean 40 kg. and S.D. 4 kg. Find the number of students with weights (i) less than 36 kg. , (ii) more than 45 kg. , (iii) between 36 kg and 45 kg. [10]
(Area under S.N.V. from $z=0$ to $z=1$ is 0.3413 and from $z=0$ to 1.25 is 0.3944)

- Q5) State the problems involved in the construction of index numbers.: [10]
Calculate the cost-of-living index number of the following data.

Commodity	2003		2013
	Price	Quantity	Price
Wheat	170	562	72
Rice	192	535	70
Sugar	195	639	95
Ghee	187	128	92
Fuel	185	542	92
Gold	150	217	180



- Q6) Define the probability of an event A. A box contains 20 tickets, numbered 1 to 20. A ticket is drawn at random from the box. Find the probability that a number on the ticket will be: [10]
i) an multiple of 2 ii) an multiple of 3
iii) a multiple of 3 or 5 iv) a multiple of 3 and 5

- Q7) Attempt any two from the following: [10]
a) State probability mass function (p. m. f.) Binomial distribution. Find its parameters if the mean and standard deviation of Binomial distribution are 10 and 2, respectively.

b) State the relation between Laspeyre's, Paasche's, and Fisher's price index numbers. If Paasches's and Fisher's price indices are 125 and 126 respectively. Obtain Laspeyre's price index.

c) Consider the quarterly sales data for a retail company over the past three years as follows:

Year	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Year 1 (Y1)	500	600	700	800
Year 2 (Y2)	550	620	720	850
Year 3 (Y3)	600	650	730	900

Calculate the seasonal indices for each quarter using the simple average method.