Mid-West University
Examinations Management Office
Final Examinations-2082

Bachelor level/Science/VII Semester   Full Marks: 60
Time: 3 hrs.   Pass Marks: 30
Subject: Economics statistics (STA473)

Candidates are required to give their answer in their own words as far as practicable. The figures in the margin indicate full marks

GROUP-A

Attempt all the questions   [6x4=24]

1. What is index number? Show that Fisher's index number is an ideal index number.   [1+5]

2. Fit the straight-line trend by using principle of least square method for the following data

year	2018	2019	2020	2021	2022	2023
Profit (in Rs 000)	20	18	25	27	24	30

   Find trend values and estimate expected profit for the year 2025.   [3+2+1]

3. The following data provides the value of mean and range for the 10 samples of size 8 each calculate the values for control line and control limits for the mean and range chart and determine whether the process is in control or not.

Sample no	1	2	3	4	5	6	7	8	9	10
Mean ($\bar{x}$)	9.2	6.8	7.8	4.6	4.0	5.6	8.4	5.0	6.8	5.9
Range (R)	3.2	2.7	3.0	1.5	2.1	2.7	1.8	3.1	4.1	2.0

4. Describe the importance of statistical quality control in industrial research.   [6]

OR

   Write down concept of Human Development Index (HDI). Also discuss on its dimensions, indicator and constructing procedure of HDI.   [2+1+1+2]

GROUP-B

Attempt all the questions   [4x6=24]

5. The following tables gives the cost-of-living index number for different commodity groups together with respective weights for 2025 (base 2020)

group	food	clothing	Fuel and light	rent	miscellaneous
Index	150	140	125	115	122
weight	40	15	15	20	10

Obtain the overall cost of living index numbers for the year 2025. Suppose a person was earning Rs.40,000 in 2020. What should be his salary in 2025 if his standard of living in that year to be the same as 2020? [3+1]

6. Write down additive and multiplicative model in time series analysis. If L(p) and P(q) represent Laspyre price index number and Paasche quantity index number, show that $L(p) \times P(q) = V_{01}$ where V_{01} is the value index number. [1+3]

7. The following table represent the trend eliminated values computed by using multiplicative model. Find the seasonal indices for various quarters. [4]

year	Trend eliminated value			
	Quarter I	Quarter II	Quarter III	Quarter IV
2014	-	-	87.21	90.25
2015	128.12	92.71	86.14	104.14
2016	127.46	92.75	88.02	103.29
2017	130.48	94.04	-	-

8. Describe different components of time series. [4]

9. Write down dimensions and indicators of Human Poverty Index
   Also, write down its implication? [2+2]

10. Explain the term chance causes and assignable causes of variation used in statistical quality control. Also, discuss on control chart for variable. [2+2]

OR

Discuss on Nepal population and agriculture census. [2+2]

GROUP-C

Attempt all the questions [2x6=12]

11. It becomes necessary to shift the base of index numbers" Explain.

12. Discuss on importance of time series analysis in economics.

13. Construct control limits for fraction defective and no of defectives.

14. Write down principle behind statistical quality control charts.

15. What are the dimensions of Gender Empowerment Measure (GEM)?

16. Write down the source of official statistics.

The End