

## Theory questions of Semester -II

### Unit-III: **CORRELATION & REGRESSIONS**

- 1. What is bi-variate data?**
- 2. Explain the scatter diagram. How correlation is studied using scatter diagram?**
3. Define correlation. What are different types of correlations? Give one example of each.
4. Define Pearson's correlation coefficient.
5. State the significance of correlation coefficient ' $r$ ' = +1, -1 & 0. Draw the scatter diagram w.r.t. for these values of  $r$ .
6. What is rank correlation?
7. What is regression? Why are there two regressions?
8. Show that correlation coefficient ' $r$ ' is Geometric Mean of regression coefficients.
9. Explain with an illustration how we can obtain mean values of  $X$  &  $Y$ , & regression coefficients  $b_{xy}$  &  $b_{yx}$ .

### Unit-IV: **TIME SERIES & INDEX NUMBERS**

- 1. Define Time series? Give at least 3 examples.**
- 2. What are the components of Time Series?**
- 3. Explain the components of Time Series with one example of each.**
- 4. What are the long term & short term variations in Time Series?**
- 5. What is trend value? What are different methods to obtain trend values?**
- 6. Explain the least square method to obtain the trend values.**
- 7. In the trend equation  $Y = a + bx$  give the significance of constant ' $a$ ' & ' $b$ '.**

8. Explain the 3 point moving average method to the trend values.
9. Explain the 4 point moving average method to the trend values.
10. How is this method different from 3 points method?
11. What is seasonal index? Explain the simple average method to obtain the seasonal index.
12. What is mean by an Index number? Explain with an illustration.
13. What are different types of Index numbers?
14. Discuss the steps in the construction of Index number.
15. What is mean by Cost of living index number? Explain with an illustration.
16. Why Laspeyre's price index is called a CLI?
17. Explain the family budget to construct the CLI.
18. What do you understand by Real income? How is it calculated using CLI?

#### Unit-V: **PROBABILITY DISTRIBUTIONS**

1. **What is Bernoulli trial? Give one illustration.**
2. **Define Binomial distribution. Give two examples where Binomial distribution can be applied.**
3. State the probability function (formula) of **Binomial distribution. Give the significance of each constant.**
4. State the Mean & Variance of **Binomial distribution.**
5. **Define Normal distribution.**
6. State the probability function (formula) of **normal distribution. Give the significance of each constant.**
7. State the Mean & Variance of **normal distribution.**
8. State the characteristics of Normal distribution
9. What is s.n.v.? How is it useful in normal distribution?
10. State 1- $\sigma$ , 2- $\sigma$  & 3- $\sigma$  limits for area under normal distribution.