

Paper II : Applied Statistics**M.M. B.Sc. : 50 / B.A. : 25****Section—A**

1. Fisher's ideal index formula does not satisfy :
(a) Time reversal test (b) Factor reversal test
(c) Circular test (d) None of the above.
2. From which method secular trend can be measured ?
(a) Link relative method (b) Moving average method
(c) Ratio to moving average method (d) Ratio to trend method.
3. Time important factors affecting the reliability of a test is :
(a) Length of test (b) Testing conditions
(c) Range of talent (d) All of the above.
4. The reliability coefficient for double length test is given by :
(a) $r_{22} = \frac{r_{11}}{1 + r_{11}}$ (b) $r_{22} = \frac{2r_{11}}{2 + r_{11}}$ (c) $r_{22} = \frac{2r_{11}}{1 + r_{11}}$ (d) $r_{22} = 2r_{11}$

5. The child bearing age in India is :
 (a) 10-14 years (b) 15-49 years
 (c) 50-65 years (d) None of the above.
6. Vital statistics is mainly concerned with :
 (a) Death (b) Birth (c) Migration (d) All these.
7. Variation in items produced in a factory may be due to :
 (a) Chance causes (b) Assignable causes
 (c) Both (a) and (b) (d) None of these.
8. When LCL of C-chart is zero then \bar{C} is :
 (a) 10 (b) 3 (c) 9 (d) 0.
9. The graph of the proportion of defectives in the lot against average sample number is :
 (a) OC curve (b) A.S.N. curve (c) Power curve (d) All the above.
10. A linear trend shows the business movement of a time series towards :
 (a) growth (b) decline (c) stagnation (d) All of the above.

Section—B

- Describe the time series. Explain one component of the time series with example.
- Explain time reversal and factor reversal test.
- Define standardized death rate. In what way is standard death rate superior to crude death rate ?
- Explain infant mortality rate.
- Define reliability and validity of a test.
- Explain \bar{X} and R chart.
- Explain OC function.
- Describe any one method for determining the seasonal component of a time series.
- What do you understand by Acceptance Quality Level (AQL) ?
- Define Producer's Risk.

Section—C

- (a) What do you understand by statistical quality control.
 (b) Draw a suitable chart to the following data and comment on the result :

Sample numbers	:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Defects	:	7	5	1	4	0	2	3	6	4	8	6	4	2	1	1

- Define ratio to trend method to measure the seasonal variation. Determine the quarterly seasonal indices from the given data :

Year	Quarter			
	I	II	III	IV
1	68	60	61	63
2	70	58	56	60
3	68	63	68	67
4	65	59	56	62
5	60	55	51	58

3. (a) Define stable and stationary population.

(b) Fill in the blank in the following life table :

Age x	l_x	d_x	p_x	q_x	L_x	T_x	e_x^0	m_x
20	693435	2762	?	?	?	35081126	?	?
21	690673	—	—	—	—	?	?	—

4. Explain the construction of wholesale price index number.

5. Explain :

(i) Parallel test, (ii) Scaling procedure, (iii) T-Scores, (iv) Rating of quality answer.