

2018

STATISTICS

(Major)

Paper : 6.3

(Applied Statistics—2)

Full Marks : 60

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

1. Answer all of the following as directed : $1 \times 7 = 7$

- (a) What is a control chart?
- (b) Define the general fertility rate.
- (c) What does the l_x column of a complete life table denote?
- (d) In SQC, when \bar{x} chart is used?
- (e) What are the control limits of p -chart?
- (f) What is epidemiology?
- (g) AOQL means _____.

(Fill in the blank)

(2)

2. Answer all questions :

2×4=8

- (a) Explain the difference between crude death rate and standardized death rate.
- (b) What are the important sources of demographic data?
- (c) What is the composition of National Statistical Commission?
- (d) Distinguish between tolerance limit and specification limit.

3. Answer any three questions :

5×3=15

- (a) Give the statistical basis of 3-sigma limits.
- (b) Discuss the important highlights of Census 2011.
- (c) Define and describe the terms 'producer's risk' and 'consumer's risk'.
- (d) Distinguish between the central death rate (m_x), the probability of death (p_x) and the force of mortality (μ_x) in a life table. Indicate possible interrelationship among these measures.
- (e) In a single sampling plan of attributes with lot size N , sample size n and allowable defective c , how will you obtain the probability of acceptance of the lot if the lot fraction defectives are p ? How will you modify the above expression using Poisson approximation?

(3)

4. Answer any three questions :

10×3=30

- (a) Discuss different fertility rates comparing their advantages and disadvantages.
- (b) Explain the fitting of logistic curve by a suitable method.
- (c) Describe the various components of a life table. How is the expectations of life at birth determined from a life table? How can it be calculated from census data?
- (d) For \bar{X} and R charts, discuss the following :
 - (i) Statistical basis of construction
 - (ii) Inference from the charts
- (e) What is understood by SQC? Discuss briefly its need and utility in industry.
- (f) What are stationary and stable populations? Discuss and differentiate between the two.

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