

Statistics.

Paper III

Duration : 2 hours.

Max. Marks : 60

- N.B. 1) All questions are compulsory.  
2) Figures to right indicate full marks.

- Q.1) Answer any Three questions
- a) What is Gantt Chart? What are its strengths and weaknesses? (5)
  - b) Explain Chance Causes & Assignable Causes of variation in quality of product. (5)
  - c) What is meant by 'Process Control' & 'Product Control'? (5)
  - d) For Single Sampling Plan, obtain an expression of Average Sample Number & Average Total Inspection. Also explain ATI curve. (5)
- Q.2) a) Explain rules of drawing PERT and CPM network (7)
- b) Answer any one question.
  - i) Define: 1) critical activity 2) critical path 3) Earliest Start Time 4) Latest Start Time 5) Earliest Finish Time 6) Latest Finish Time 7) Float for an activity. (8)
  - ii) Explain the method of tackling the problem of crashing where cost is important. (8)
- Q.3) a) Distinguish between Variable control charts & attribute control charts. How is the process judged to be under Statistical control using Control chart? (7)
- b) Answer any one question.
  - i) Set up  $\bar{X}$  & R chart when standards are not given. How can the process average be estimated from  $\bar{X}$  chart? (8)
  - ii) Discuss method of stabilization using two sets of control limits corresponding to  $n_{\max}$  &  $n_{\min}$  in 'P' chart when sample size is variable. (8)
- Q.4) a) Explain following terms w.r.t. Acceptance Sampling plan (7)
- i) Acceptance Quality level.(AQL)
  - ii) Rejection Quality level (RQL) or Lot Tolerance Percentage Defective.(LTPD)
  - iii) Process Average Fraction Defective.
  - iv) Producer's Risk.
  - v) Consumer's Risk.
  - vi) Operating Characteristic (O.C.)
  - vii) Average Total Inspection.
- b) Answer any one question.
  - i) Obtain an expression for i)O.C. the operating Characteristic and ii) AOQ, Average Outgoing Quality for Single Sampling Plan. (8)
  - ii) Explain Double Sampling Plan. State the expression of O.C. for Double Sampling Plan. (8)

