Indian Statistical Institute

M.S.(QMS) First Year
Second Semester – Reliability, Maintainability and Safety - II

Date: 26/02/2019   Time: 2 hours   Maximum Marks: 50
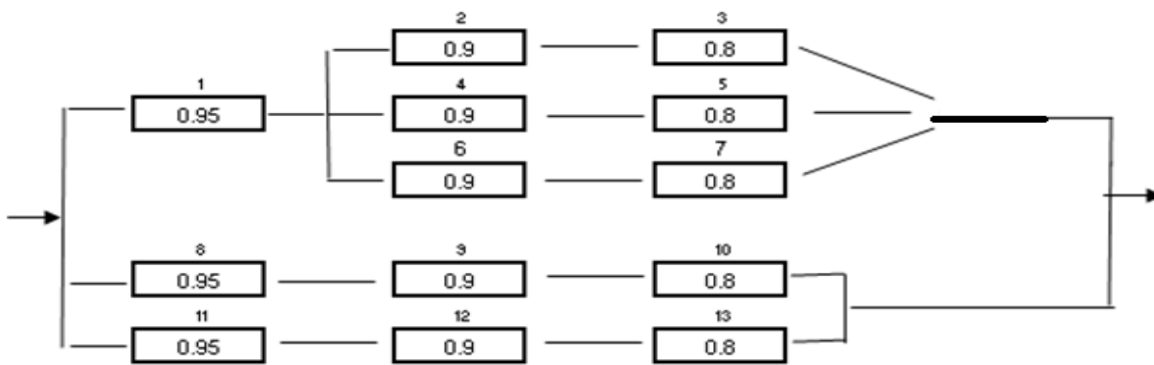
1. Eight items were put on life test to failure. The corresponding data in hours are as follows.
   871, 2294, 3943, 5494, 7900, 8073, 11020, 15840
   Assuming Exp(λ), estimate
   (i) λ
   (ii)   95% two-sided confidence interval for λ.
   (iii)   MTTF

   $[5 + 5 + 5 = 15]$

2. Calculate the system reliability for the following system.

   [10]

3. Assuming exponential distribution, define the general form of likelihood function for interval censored data. Use the usual notations.

   [10]

4. Consider the following data from life testing, in hours.

Unit No.	Time (t_i)	Failed / Censored
1	3	F
2	10	F
3	24	C
4	28	F
5	42	F
6	98	F
7	108	C

   Assuming Exp(λ), estimate λ.

   [10]

5. Write short note on the following
   a. Progressive type – I interval censoring
   b. *r* out of *n* system

   $[2 \times 5 = 10]$