

IAT-2. Scheme of evaluation for DSS 8 Sem:

- ①  
 5M (a) functions of SLIC — 5M  
 5M (b) Co in SPCS — 5M
- ②  
 6M (a) iterative formulae of lost call system with assumptions — 6M  
 4M (b) A group of 20 trunks — 4M  
 (i)  $E_{1,21}(12) = 0.0057$  (2M)  
 (ii)  $E_{1,19}(12) = 0.017$  (2M)
- ③  
 5M (a) basic call process List — 2M  
 Diagram — 1M  
 explanation — 2M  
 5M (b) 2 stage xk's N incoming & N outgoing diagram — 2M  
 Design & explanation — 3M  
 ↓  
 formulae.
- ④  
 5M (a) outgoing traffic (A) =  $\frac{180 \times 3}{2 \times 60} = 9E$  2M  
 incoming traffic =  $\frac{400 \times 6}{60} = 40E$  2M  
 Total traffic =  $40E + 9E = 49E$  lang's / 1M
- 5M (b) (i)  $B = E_{1,5}(A) = \frac{32/120}{1 + \frac{2}{1} + \frac{4}{2} + \frac{8}{6} + \frac{16}{24} + \frac{32}{120}} = \frac{0.2667}{7.2667} = 0.037$  (2M)
- $$E_{1,N}(A) = \frac{A^N / N!}{\sum_{k=0}^N A^k / k!} \quad \begin{matrix} A=2 \\ N=5 \end{matrix}$$
- (ii)  $P(x) = \frac{A^x / x!}{\sum_{k=0}^N A^k / k!} \quad P(1) = \frac{2}{7.2667} = 0.275$  (1M)
- (iii)  $P(4) = \frac{16/24}{7.2667} = 0.0917$  (1M) (iv)  $P(x < 5) = 1 - P(5)$  (1M)  
 $= 1 - B = 0.963$



5  
10M

Design a grading

Diagrams → 3M  
Formulas used → 2M  
Solving properly → 5M

$D_1 = 6+5$   
 $D_2 = 2+0$  ←  
 $D_3 = 2+5$

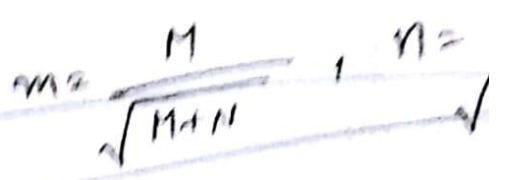
6

Diagram - 5M (2.5+2.5)

Explanation - 5M

Solving - 4M

Formula - 1M



6  
10M

Derivation - 5M

3 Stage 100 in coming  
100 outgoing

Problem

↳ generalised diagram (specific diagram)  
↳ 2M

- (i)  $m=5, n=20$  (1.5M)
- (ii)  $m=4, n=16$  (1.5M)

7  
10M

2nd Exlong

Four assumption - 2M  
Diagram - 1M

$x < N \rightarrow 3\frac{1}{2}$

$x \geq N \rightarrow 3\frac{1}{2}$  Marks