Assignment

Fill in the Blanks

① Saddle point

② Algebraic method

③ Inter arrival method

④ $\rho = \dfrac{\lambda}{c\mu}$

⑤ $E(m) = \dfrac{\rho^2 - N\rho^{N+1} + (N-1)\rho^{N+2}}{(1-\rho)(1-\rho^{N+1})}$

Short Answer

7) **Pay off Matrix**

A Pay off matrix in a table in which strategies of one player are listed in rows and those of the other players in columns and the cells show pay offs to each player

8) **Group Replacement**

→ An optimal group replacement period 'p' is determined and common preventive replacement in carried out as follows

ⓐ Replace an item if it fails before optimal 'p' (period)

ⓑ Replace all items every optimum period of 'p' irrespective of life of individual item

ⓐ Basic characteristic of queue system

→ I/P process
→ queue size
→ Arrival distribution
→ customer behaviour

ⓘ Little's formula

$L = \lambda \times W$

L → avg. no. of items in queuing system

λ → avg no. of items at the system per unit of time

W → The avg. waiting time as item spends in a queuing system

ⓒ Two types of game :

→ $2 \times N$
→ $M \times 2$

Detailed answer

ⓘ

Year

Year	1	2	3	4	5	6	7	8
maintenance cost	100	250	400	600	900	1100	400	2000

→ Let it is profitable to replace the machine off after n years. The n is determined by the min value of T avg.

Years Service	Purchase price - swap value	Annual maintena cost	Summation of maintenance cost	Total cost	Avg annual cost (Tavg)
1	6000	100	100	6100	6100
2	6000	250	350	6350	3175
3	6000	400	750	6750	2250
4	6000	600	1350	7350	1837.50
5	6000	900	2250	8250	1650
6	6000	1200	3450	9450	1575 → Min
7	6000	1600	5050	11050	1578
8	6000	2000	7050	13050	1631

∴ The avg. annual cost is min. Rs should be replaced

ty after 6 years of use

which is 1575/- during the 6ᵗʰ year,

Hence the m/c