**The Reliability Problem**

A large milling machine has **3** different bearings that fail in service. The distribution function of life of each bearing is identical which is given in table.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Bearing Life(Hrs.) | 1100 | 1200 | 1300 | 1400 | 1500 |
| Probability | 0.10 | 0.25 | 0.15 | 0.30 | 0.20 |

When the bearing fails, the machine stops working. A Repair Person is called and a new bearing is installed. The delay time of the repair person arriving at the milling machine is also a random variable and its distribution is given in the following table:

|  |  |  |  |
| --- | --- | --- | --- |
| Delay Time (Mins.) | 5 | 10 | 15 |
| Probability | 0.40 | 0.50 | 0.10 |

Downtime of machine is estimated at **Rs.10/minute.** The direct on-site cost of repair person is **Rs.25/hr**. It takes **10 minutes** to change one bearing, **20 minutes** to change two bearings, & **30 minutes** to change three bearings; the cost of one bearing is **Rs.20.**

Find out the cost of bearings, cost of delay of downtime during repair, cost of repair person & total cost by **Current Method / Proposed Method**