เฉลยแบบทดสอบ OPTIMUM SPARES

1. Mean Time Between Failure (MTBF) = Average Time which an item failed.

Failure Rate (λ) = 1 / MTBF. What is the Failure Rate (λ) of an aircraft hydraulic pump which has an average time to fail at 2,000 flying hours ?

a. 0.0005

b. 0.00005

c. 0.05

d. 0.005

2. An AC Generator of an aircraft has a failure rate (λ) = 0.0004. What is the AC Generator average time to fail ?

a. 1,500 flying hours

b. 2,000 flying hours

c. 2,500 flying hours

d. 3,000 flying hours.

3. Optimum Spares (by the use of Poisson Distribution) S = μ + (Kcl * $\sqrt{\mu}$).

S = Optimum Spares Quantity; μ = n * λ * t (n = total fleet quantity; λ = failure rate; t = total time use per 1 aircraft); Kcl = Coefficient of Confidence.

What is the optimum spare brake assemblies quantity in 1 year, at 95 % confidence level, in the fleet of 12 aircraft, 2 brake assemblies per 1 aircraft and the brake assembly has an average failed time at 500 landings, the aircraft utilization rate is 150 flying hours per year per aircraft and the flight duration is 1 flying hour per 1 landing ? (Kcl for 95 % confidence level = 1.65)

a. (12 * 0.002 * 150) + (1.65 * √(12 * 0.002 * 150)

b. (24 * 0.002 * 150) + (1.65 * √(12 * 0.002 * 500)

c. (24 * 0.002 * 500) + (1.65 * √(24 * 0.002 * 150)

d. (24 * 0.002 * 150) + (1.65 * √(24 * 0.002 * 150)

4. Optimum Spares (by the use of Poisson Distribution) S = μ + (Kcl * √μ).

S = Optimum Spares Quantity; μ = n * λ * t (n = total fleet quantity; λ = failure rate; t = total time use per 1 aircraft); Kcl = Coefficient of Confidence.

What is the optimum spare propeller quantity in 1 year, at 90 % confidence level, in the fleet of 18 single engine aircraft, 1 propeller per 1 aircraft and the propeller assembly has an average failed time at 2,000 flying hours, the aircraft utilization rate is 300 flying hours per year per aircraft ? (Kcl for 90 % confidence level = 1.29)

a. (36 * 0.0005 * 300) + (1.29 * √ (18 * 0.0005 * 300)

b. (18 * 0.0005 * 300) + (1.29 * √ (18 * 0.0005 * 300)

c. (18 * 0.0005 * 300) + (1.29 * √ (36 * 0.0005 * 300)

d. (18 * 0.0005 * 300) + (1.29 * √ (18 * 0.0005 * 150)

5. Mean Time Between Failure (MTBF) = Average Time which an item failed.

Failure Rate (λ) = 1 / MTBF. What is the Failure Rate (λ) of an aircraft trim tab actuator which has an average time to fail at 1,000 flying hours ?

a. 0.0001

b. 0.001

c. 0.01

d. 0.1

6. A fuel control unit of an aircraft engine has a failure rate (λ) = 0.0002. What is the average time to fail of the fuel control unit ?

a. 3,500 flying hours

b. 4,000 flying hours

c. 5,000 flying hours

d. 6,500 flying hours.

7. Optimum Spares (by the use of Poisson Distribution) S = μ + (Kcl * $\sqrt{\mu}$).

S = Optimum Spares Quantity; μ = n * λ * t (n = total fleet quantity; λ = failure rate; t = total time use per 1 aircraft); Kcl = Coefficient of Confidence.

What is the optimum spare EGT indicators quantity in a deploy unit of 6 twin engine aircraft, at 95 % confidence level, 2 EGT indicators per 1 aircraft and the EGT indicator has an average failed time at 1,000 flying hours, the aircraft deploy period is 6 months, with utilization rate of 30 flying hours per month per aircraft ? (Kcl for 95 % confidence level = 1.65)

a. (12 * 0.001 * 180) + (1.65 * √(12 * 0.001 * 180)

b. (6 * 0.001 * 180) + (1.65 * √(6 * 0.001 * 180)

c. (12 * 0.001 * 30) + (1.65 * √(12 * 0.001 * 30)

d. (6 * 0.001 * 30) + (1.65 * √(6 * 0.001 * 30)

8. Optimum Spares (by the use of Poisson Distribution) S = μ + (Kcl * $\sqrt{\mu}$).

S = Optimum Spares Quantity; μ = n * λ * t (n = total fleet quantity; λ = failure rate; t = total time use per 1 aircraft); Kcl = Coefficient of Confidence.

What is the optimum spare engine tail pipes quantity in 1 year, at 90 % confidence level, in the fleet of 12 four - engine aircraft, 4 engine tail pipes per 1 aircraft and the engine tail pipe has an average failed time at 4,000 flying hours, the aircraft utilization rate is 500 flying hours per year per aircraft ? (Kcl for 90 % confidence level = 1.29)

a. (12 * 0.00025 * 500) + (1.29 * √(12 * 0.00025 * 500)

b. (24 * 0.00025 * 500) + (1.29 * √(24 * 0.00025 * 500)

c. (48 * 0.00025 * 500) + (1.29 * √(48 * 0.00025 * 500)

d. (48 * 0.00025 * 500) + (1.29 * √(48 * 0.00025 * 500)

………………………………………………………………