Klausur: Supplier Management; EDV Nr.:450286; Art de Prüfung: PK; Prüfer: Prof. Dr.-Ing. Dr.-Ing. habil. Javier Villalba-Diez

Name, Vorname: , . Matrikelnummer:

Datum: 20240725; Ort: Schwäbisch Hall; Bearbeitungszeit: 90 Minuten; Zugelassene Hilfsmittel: n.p. Taschenrechner.

Gesamtpunktzahl: 100 Points

Weitere Erläuterungen [1]

1. **Ex (20 Points):**
   (a) Please explain how a Quality audit can be integrated into an overall Lean Management system with CPDnA. Please explain step by step and give an example (10 Points)
   (b) What questions would I ask in the 4-S Phase of a cleanliness audit in a manufacturing facility? (10 Points)
2. **Ex (20 Points):** Ennumerate and give a short explanation of the 12 most important aspects of supply chain management from a purchasing perspective.
3. **Ex (20 Points):** Ennumerate at least 5 qualitative criteria for MAKE and at least 5 qualitative criteria for BUY decision making.
4. **Ex (20 Points):** Given following data from a process:
   - D=r=Demand/Year=3000 Units/Year,
   - P=Purchase Price/Unit,
   - Cc=Carrying Cost/Unit/Year=2 EUR/Unit/Year,
   - Co=Ordering Cost=200 EUR/order,
   - k=Production Rate (Units/Year)=8000 Units/Year.

   Please perform an economic analysis and explain in detail the best option BUY or MAKE following the EOQ Model for the purchasing model and manufacturing model respectively.

   What is your recommendation based on the calculation of the total cost of purchasing as a function of P?

   NOTE: the math alone is not enough, you MUST explain in words what is the meaning of each step. Also to write the formula without context is not enough to earn points in the exercise.

[1] Versehen Sie alle Bögen mit Ihrem Namen, Matrikelnummer, und Studiengang. Lassen Sie auf jeder Seite einen Seitenrand von 3 cm frei. Verwenden Sie nur dokumentenechte Schreibstifte (keinen Bleistift). Modulprüfungen: Bitte benutzen Sie bei getrennten Prüfern unterschiedliche Klausurbögen. Verwenden Sie nur das bereit gestellte Klausurpapier. Während der Klausur sind keine Fragen zugelassen. Es werden nur lesbare Klausuren bewertet!

Remember that:

EOQ Formula:

$$EOQ = \sqrt{\frac{2 \cdot D \cdot C_o}{C_c}} \tag{1}$$

Total Annual Cost Formula:

$$\text{Total Cost} = \left(\frac{D}{EPQ} \cdot C_o\right) + \left(\frac{EPQ}{2} \cdot \left(1 - \frac{D}{k}\right) \cdot C_c\right) + (D \cdot \text{Prod. Cost/Unit}) \tag{2}$$

EPQ Formula:

$$EPQ = \sqrt{\frac{2 \cdot D \cdot C_o}{C_c \cdot \left(1 - \frac{D}{k}\right)}} \tag{3}$$

5. **Ex (20 Points):** Please derive the formula of the economic order quantity and minimum cost at this EOQ for the class III hypothesis: no backlog, constant demand, and production/delivery not immediate. Please explain each parameter in detail and explain graphically the meaning of your results.

Viel Erfolg wünscht H4.