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Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Eighth Semester B.Tech Degree Supplementary Examination August 2021



Course Code: ME404

Course Name: INDUSTRIAL ENGINEERING

Max. Marks: 100

Duration: 3 Hours

PART A

Answer any three full questions, each carries 10 marks.

Marks

- 1 a) Write the scope, objectives and importance of industrial Engg? (3)
b) List out any six functions of Industrial Engg? (3)
c) Explain C-V-P Analysis with a neat sketch? (4)
- 2 a) What is 'Value Engineering'? State its importance? (3)
b) What is a prototype? Give brief description about any two types of prototypes? (3)
c) A manufacturer buys a component at Rs 200 each. In case, he makes it himself, the fixed and variable cost would be Rs 300,000 and Rs 50 per component, respectively. Should the manufacturer make or buy the component if there is a demand for 2500 such components? Justify? (4)
- 3 a) Write any six principles of material handling? (3)
b) Distinguish between preventive and breakdown maintenance? (3)
c) What is a cellular layout? State its two advantages and disadvantages? (4)
- 4 a) List out any four reasons for equipment replacement? (2)
b) Explain any two methods for calculating depreciation? (4)
c) A vehicle is purchased for Rs 80000. The estimated residual value after five years is Rs 35000. Calculate the annual depreciation using i) straight line method ii) sum of digit method? (4)

PART B

Answer any three full questions, each carries 10 marks.

- 5 a) "Work study is a tool to improve productivity" Justify. (3)
b) What is the difference between operation process chart and flow process chart? (3)
c) Differentiate between work measurement and method study? (4)
- 6 a) Distinguish between Job evaluation and Merit rating? State its importance? (3)
b) Give any six requirements of sound wage incentive plan? (3)
c) What is meant by performance rating and give the role and significance of 'normal time', 'standard time', and 'allowances' in this study? (4)
- 7 a) What is the effect of workers' participation in management? (3)

- b) What is the effect of fatigue in an industry? Write about any two methods for eliminating it? (3)
- c) Give the importance of industrial relations? How to improve it? (4)
- 8 a) What is the significance of Industrial safety? Give any two measures to ensure it? (3)
- b) Write about different types of communication in industry? How it affects the overall performance? (3)
- c) Discuss any three causes of industrial disputes and how to settle it? What is the role of trade unions in an industry? (4)

PART C

Answer any four full questions, each carries 10 marks.

- 9 a) List out any four selective inventory control techniques and explain any two methods? (3)
- b) What is a Gantt chart? How is it useful in production, planning and control? (3)
- c) Define different costs associated with inventory? (4)
- 10 a) What are the major functions of production planning and control? (2)
- b) Derive an expression for the economic order quantity when the stock replenishment is instantaneous giving its assumptions made? (4)
- c) The demand for an item is 4000 units per year. The purchase cost per unit is Rs 100. Carrying cost per unit per year is 20% of purchase cost per unit. Order cost is Rs 900 per order. Calculate i) Economic order quantity ii) Optimal number of orders per year iii) Time between orders iv) Total inventory cost per year. (4)
- 11 a) Define the following terms i) Economic order quantity ii) Inventory turnover iii) Lead time & iv) Reorder level (4)
- b) Classify inventory and give brief description about each one? (4)
- c) Write any four objectives of inventory control? (2)
- 12 a) Explain any two in each of the destructive and Non destructive testing methods? (4)
- b) Differentiate between sampling inspection and 100% inspection? (3)
- c) How control charts are applied in statistical process control? (3)
- 13 a) What is system reliability? How it can be improved? (3)
- b) Define quality? What is its importance in modern business environment? (3)
- c) Describe 'Bath-tub' curve and its significance? (4)
- 14 a) What is Total quality management (TQM)? List any four benefits of TQM? (3)
- b) What is ISO 9000 Quality system and write about its status in India? (3)
- c) Write about the characteristics of Six Sigma and steps in implementing it? (4)
