

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
Eighth Semester B.Tech. Degree Examinations, September 2020

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

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| 1 | a) What is Brake Even Point (BEP)? Write its significance? | (3) |
| | b) What is a prototype? How it is useful in product development? | (3) |
| | c) List out different stages of product development and explain each stage? | (4) |
| 2 | a) Explain any four major objectives/ requirements of good product design? | (4) |
| | b) Discuss any three major human factors to be considered in design? | (3) |
| | c) Differentiate between standardization, simplification and specialization in product design? | (3) |
| 3 | a) List out different types of plant layout and explain any two? | (3) |
| | b) Write any six factors to be considered in the selection of material handling equipments? | (3) |
| | c) Classify different types of material handling equipments? Explain the application of anyone equipment in each class? | (4) |
| 4 | a) What is mean by depreciation and give any four causes of depreciation? | (3) |
| | b) Give any three objectives of plant maintenance? | (3) |
| | c) An old vehicle was purchased for Rs 80000. Its life was estimated as ten years and the scrap value as Rs 20000. Using the reducing balance method, calculate (a) the depreciation rate (%) (b) the depreciation fund at the end of two years | (4) |

PART B

Answer any three full questions, each carries 10 marks.

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| 5 | a) Write any four principles of motion economy? | (4) |
| | b) Define method study and time study? What is its significance? | (3) |
| | c) What are therbligs? Give any four examples with details? | (3) |
| 6 | a) What is job evaluation? Explain any two methods? | (3) |
| | b) What is merit rating? Explain any two methods? | (3) |
| | c) What is meant by wage incentive plans? Explain any three types? | (4) |
| 7 | a) What is meant by collective bargaining? State its objectives? | (3) |

- b) What is the role of trade unions in an industry? (3)
- c) Write about the importance of industrial safety? How to ensure it? (4)
- 8 a) What are the significance and benefits of workers' participation in management? (3)
- b) List out any three different types of industrial fatigue and state its causes? (3)
- c) Give any two major causes and effects of industrial disputes and methods to settle it? (4)

PART C

Answer any four full questions, each carries 10 marks.

- 9 a) Give the importance of planning in an industry? (3)
- b) Explain different stages in a product life cycle with a diagram? (3)
- c) Distinguish between Job, Batch and Mass production with an example in each case? What is the ideal situation for mass production system? (4)
- 10 a) What is meant by inventory? Write any two major reasons for keeping it? (3)
- b) Describe the procedure for ABC analysis of selective inventory control techniques with a sketch? (3)
- c) The demand for an item is 3200 units per year. The purchase cost per unit is Rs 40. Carrying cost per unit per year is 20% of the purchase cost per unit and Ordering cost is Rs 200 per order. Determine i) Economic order quantity ii) Optimal number of orders per year iii) Time between orders iv) Total inventory cost per year. (4)
- 11 a) What is Gantt Chart? State it's any two advantages and limitations? (4)
- b) List out any four shop scheduling techniques? (2)
- c) What are the functions of production planning and control? Explain each one? (4)
- 12 a) What is statistical quality control? Write its importance? (3)
- b) List out any four factors that affect quality? How each factor affects quality? (3)
- c) What is meant by the term 'Process capability'? State its significance? (4)
- 13 a) With the help of a sketch, illustrate the different phases, important features and significance of each phase of a 'Bathtub curve'? (4)
- b) What is quality circle? Give its any four benefits? (3)
- c) Differentiate sampling inspection and 100% inspection? (3)
- 14 a) What is Total Quality Management (TQM)? Give any four benefits of TQM? (3)
- b) Give a brief description about ISO 9000 quality system? (3)
- c) What is 'Six sigma' concept? Give the DMAIC steps, in implementing 'Six sigma'? (4)
