

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019

**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) Explain with an example how a successful product connect with user on the three levels 'useful' 'usable' and 'desirable'. | (3) |
|   | b) Describe functional design and design for production.   | (4) |
|   | c) Explain function analysis in the context of value engineering with the help of an example.                                | (3) |
| 2 | a) List the steps of new product development process. Explain the process with an example.                                   | (3) |
|   | b) What is the use of life cycle cost in value analysis? Explain with an example.  | (3) |
|   | c) What are the benefits and problems of outsourcing?  | (4) |
| 3 | a) What is fixed position layout? What are the situations which necessitates the use of these types of layouts?              | (4) |
|   | b) Describe the factors responsible for the replacement of equipment in working condition.                                   | (3) |
|   | c) What is unit load in material handling? How unit load can be accomplished?  | (3) |
| 4 | a) State the symptoms of a bad plant layout.   | (3) |
|   | b) List different equipments used for material handling between fixed points over a fixed path.                              | (3) |
|   | c) Describe product layout with a neat sketch and state its advantages and limitations.                                      | (4) |

**PART B**

*Answer any three full questions, each carries 10 marks.*

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|---|---|-----|
| 5 | a) With the help of ergonomics motion economy can be ensured in designing a work place layout | (3) |
|   | b) Write short note on multiple activity chart  | (3) |
|   | c) Define work study and explain its basic procedure  | (4) |
| 6 | a) List out various performance rating method   | (4) |

- b) Explain standard time calculation in a job (3)
- c) Types of allowances in doing a job (3)
- 7 a) Objectives of labour welfare in an industry (4)
- b) Discuss some labour welfare measures undertaken by organisation in recent days (3)
- c) Define industrial accidents and its effect in productivity (3)
- 8 a) A trade union is an instrument of industrial democracy explain (5)
- b) Describe direct and indirect cost associated with accidents (5)

**PART C**

*Answer any four full questions, each carries 10 marks.*

- 9 a) What are the major objectives of Production planning and control? How PPC help an industry to enhance its performance? (5)
- b) Differentiate between production planning and production control (5)
- 10 a) Differentiate between P system and Q system with the help of a diagram. (5)
- b) How aggregate planning is done in a manufacturing enterprise? (5)
- 11 a) What factors influence the choice of manufacturing process from conventional to cellular manufacturing process? (3)
- b) What are the major advantages and limitations of cellular manufacturing system? (4)
- c) Differentiate between the Dispatching and Expediting function of PPC. (3)
- 12 a) What are the major factors affecting quality? Write short notes on each factor stating how this affect the quality? (5)
- b) Differentiate between Quality control and Inspection. (5)
- 13 a) Explain how material testing is done in an industry and why testing is important? (3)
- b) Give a brief description of the destructive tests performed by industries. (4)
- c) What are the various methods of inspection followed by industries? Write a brief description of any two. (3)
- 14 a) What are the different phases of a bath tub curve? With the help of a sketch illustrate the important features of each phase. (4)
- b) State the benefits associated with using non-destructive testing methods. What are the common non-destructive testing methods used for material inspection? (3)
- c) With suitable diagram explain any one non-destructive testing method? (3)

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