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

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.

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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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

EIGHTH SEMESTER B.TECH DEGREE EXAMINATION(S), OCTOBER 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

1	a)	What are the human factors to be considered while designing a new product? Explain with an example.	(3)
	b)	What is the importance of 'standardization' and 'simplification' in product development and design?	(4)
	c)	Explain the use of prototype in product development.	(3)
2	a)	What are the functions of Industrial Engineering?	(3)
	b)	Describe the procedure followed while designing a product.	(3)
	c)	A company manufactures ball-point pens that can be sold at Rs. 15 per piece. Variable cost of the pen is Rs. 10 per unit. If the company has made a total investment in fixed cost to the tune of Rs. 30000, what is the beak-even sale for the pen?	(4)
3	a)	Describe different types of plant layouts with sketch. Which type of layout should be used for a cotton mill? Why?	(4)
	b)	Describe the factors to be considered in the design of material handling system.	(3)
	c)	How depreciation is considered in replacement problems?	(3)
4	a)	What are the criteria for the choice of a type of material handling equipment?	(3)
	b)	Explain MAPI method.	(3)
	c)	What is break down maintenance? What are its limitations?	(4)

PART B

Answer any three full questions, each carries 10 marks.

5	a)	Discuss the objectives of method study	(3)
	b)	Explain Operation Process Chart	(3)
	c)	Write short note on SIMO Chart,Cronocycle graph and cycle graph	(4)
6	a)	Objectives of job evaluation and merit rating and different merit rating method	(4)
	b)	List out various performance rating method	(3)
	c)	Factors involved in selection of job in any industry	(3)
7	a)	Discuss significance of industrial relations in business environment	(4)
	b)	Causes and effects of industrial disputes and how it can be eliminated	(3)

	c)	Method of elimination of fatigue and its effect in industry	(3)
8	a)	Types of communication in industry and how it affect productivity	(2)
	b)	Need for Workers participation in management Various forms of workers participation in management	(4)
	c)	Characteristics of collective bargaining and explain safety programme and safety committee	(4)

PART C

Answer any four full questions, each carries 10 marks.

9	a)	What are the major functions of Production planning and control?	(3)
	b)	With the help of a neat diagram illustrate the PLC concept. Comment on each phases of the PLC.	(4)
	c)	What are the various production systems? How they are classified?	(3)
10	a)	With the help of a neat diagram explain the cellular manufacturing system.	(3)
	b)	Differentiate between aggregate planning and master scheduling.?	(4)
	c)	Derive the basic EOQ model and list the various assumptions on which it works.	(3)
11	a)	How inventories are classified and costs associated by inventories?	(3)
	b)	A manufacturer has to supply 10,000 units of product annually. The unit cost is Rs. 2 and it costs Rs.36 to place an order. The inventory carrying cost is estimated at 9% of average inventory investment. Determine 1. EOQ 2.Optimum number of orders to be placed per annum. 3.Minimum total cost of inventory	(4)
	c)	List out the major selective inventory control techniques and give a detailed description of any one technique.	(3)
12	a)	Differentiate between 100% inspection and sampling with suitable examples.	(3)
	b)	What are the applications of control charts?	(3)
	c)	What are the components of process capability? Write short notes on any two indices used to measure the same.	(4)
13	a)	State the advantages of using statistical methods for quality control?	(3)
	b)	Define the term reliability. What are the different configurations related to system reliability? Give a detailed description of any two with the help of an example.	(4)
	(c)	With proper illustration explain the how Gantt charts are employed tracking the progress of activities in an industry?	(3)
14	a)	Explain the various dimensions of TQM and Six Sigma concept.	(4)
	b)	Give an account of the major features of ISO9000 quality system.	(3)
	c)	Describe the concept of quality circle. What are its objectives and benefits?	(3)

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