Reg. No. : | | | | | | | | | | |

Question Paper Code: 92013

M.E. DEGREE EXAMINATION, MAY 2014.

Elective

CAD / CAM

01PCD519 - LEAN MANUFACTURING

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. What is Lean production?
2. What is the need for Lean production?
3. Define: Total Productive Maintenance.
4. What is meant by standardized Work?
5. List any four principles of JIT.
6. What do you mean by value stream mapping?
7. State the concept of JIDOKA.
8. List the types of mistake proofing systems.
9. What is meant by Kaizen?
10. What is a Quality circle activity?

PART - B (5 x 14 = 70 Marks)

11. (a) (i) Explain in brief about the lean revolution in Toyota. (7)

(ii) Discuss briefly about Mass production system and Lean production system. (7)

Or

(b) (i) Explain in detail about systems and systems thinking. (7)

(ii) Discuss in detail about basic image of Lean production. (7)

12. (a) (i) Discuss about the various elements of standardized work. (7)

(ii) Explain about the various charts to define standardized work. (7)

Or

(b) (i) Compare Standardized work with Kaizen. (7)

(ii) Explain the common layouts with neat sketches. (7)

13. (a) List and explain the various principles of JIT. Discuss in detail about the JIT system. (14)

Or

(b) Discuss in detail about Production leveling and Pull systems. (14)

14. (a) (i) What are the various ways to achieve Poka – Yoke? Explain in detail. (7)

(ii) List and explain the various issues in implementing Jidoka. (7)

Or

(b) Explain in detail about Inspection systems and Zone control. (14)

15. (a) Explain in detail about the various activities involved to motivate the workers. (14)

Or

(b) What is Hoshin planning system? Explain in detail about the different phases of Hoshin planning system. (14)

PART - C (1 x 10 = 10 Marks)

16. (a) A two workstation cell uses a Kanban system with a container size of 14 units. The workstation makes ten different versions of the same product. Total annual demand is 250000 parts. The first workstation has a maximum production rate of 350000 parts per year and the second workstation produce 400000 parts per year working full time. Internal set up is 0.0005 years at the first workstation and 0.0008 years at the second. External set up time is 0.0002 years per batch at each workstation. What batch size would you use for this center? (10)

Or

(b) Determine the impact on the cycle time, flow time, average inventory, process time, batch size, number of setups and total set up time for 70% reduction in set up time and cost. Assume processing times are deterministic and the system uses an order release policy that maintains two jobs in the system for each machine. (10)

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