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Question Paper Code: 55P19

M.E. DEGREE EXAMINATION, DEC 2020

Elective

CAD / CAM

15PCD519 - LEAN MANUFACTURING

(Regulation 2015)

Duration: One hour

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. Which of the following is correct regarding 'Lean Production'? CO1-U
 - (a) Lean production is a philosophy that aims to systematically eliminate waste
 - (b) Lean production focuses on reducing system response time so that the production system is capable of rapid change to meet market demands
 - (c) Both A&B are correct
 - (d) None of the above

2. Lean production aims to eliminates wastes such as: CO1- R
 1. Inventory – holding or purchasing unnecessary raw materials, work in progress and finished goods.
 2. Waiting – time delays/idle time when value is not added to the product.
 3. Defective units – production of a part that is scrapped or required rework.
 4. Effort – actions of people/equipment that do not add value
 5. Transportation – delays in transportation or unnecessary handling.
 6. Over processing – unnecessary steps that do not add value.

(a) (1) (3) and (5) only (b) (1) and (5) only (c) None (d) All of the above

3. Characteristic of lean production include: CO2-U
- (a) Improved production scheduling – production is initiated by customer demand rather than ability and capacity to product, i.e. production is demand-pull, not supply-push.
 - (b) Small batch production or continuous production – production is based on customer demand resulting in highly flexible and responsive processes.
 - (c) Continuous improvement, Zero inventory (JIT), Zero waiting time.
 - (d) All of the above
4. Identify the core methods of lean manufacturing: CO2-U
- (a) Just in time (JIT), Kaizen, 5S practice
 - (b) Total productive maintenance (TPM), Cellular manufacturing, six-sigma
 - (c) Both A&B
 - (d) None of the above
5. Benefits of lean production may include: CO3-U
- (a) It enables a company to deliver on demand
 - (b) Minimize inventory, maximize the use of multi-skilled employees
 - (c) Flatten the management structure and focus resources where they are most effective.
 - (d) All of the above
6. Lean production is also known as: CO3-R
- (a) lean manufacturing
 - (b) lean process improvement
 - (c) Both A&B
 - (d) None of the above
7. Which of the following is correct with regard to Main ISO standards? CO4-U
- (a) ISO 9001: contains the quality management standards. Organizations should follow these standards if they want to become registered
 - (b) ISO 9000 and 9004: contains guidelines which help organization to implement quality standards.
 - (c) ISO 14001: is of growing importance to companies. It specifies the process for controlling and improving and organization's environmental performance.
 - (d) All of the above are correct

8. Which of the following is correct regarding ISO 9000 standards? CO4-U
- (a) The ISO 9000 standards are process standards, not product standards.
- (b) Organizations are granted certified or compliant status on the basis that their processes rather than their products and services meet ISO 9000 requirements.
- (c) Both A&B
- (d) None of the above
9. Total productive maintenance (TPM) engages all levels and functions of the organization in maintenance. Workers are trained to take care of the equipment. CO5-U
- (a) True (b) False (c) Frequency (d) None of the above
10. The major factors that need to be considered in order to implement TPM are: CO5-U
- (a) Training, Planning (b) Equipment maintenance
- (c) Having an adequate budget in place (d) All of the above

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. What is mental model and how conventional model differs from lean model analyze. CO1- U (8)
12. Explain TPM process in detail. CO2-U (8)
13. Explain the types of kanban and the six kanban rules in detail. CO3- U (8)
14. What is poka-yoke . Explain the inspection system and zone control.. CO4- U (8)
15. Explain the kaizen circle activity with its application CO5- U (8)