



## All Multiple Choice Question 2020/2021\_Solved

Operations management (Politecnico di Milano)

1. Lean organizations are characterized by:
  - a. Hierarchical organization composed by few large teams, low level of power delegation to team officers.
  - b. Flat organization composed by many small teams, high level of power delegation to people.
  - c. Flat organization composed by few large teams, high level of power delegation to team officers.
  - d. Hierarchical organization composed by many large teams, low level of power delegation to people.
2. In the HQ case, which are the most significant performance to compete the new market?
  - a. Quality (conformity) and time (Delivery reliability).
  - b. Time (speed), flexibility (product and plan), quality of design.
  - c. Price and quality of design.
  - d. Time (speed), price and flexibility (variety).
3. Choose the only correct answer regarding the customer behavior in a queuing system modeling.
  - a. Reneging is when a customer already in queue gives up the service and goes away without being served.
  - b. Balking is when a customer already in queue gives up the service and goes away without being served.
  - c. Rejecting is when a customer decides to exit the system because she doesn't respect acceptance requirements.
  - d. Reneging is when customer decides not to enter a queue because it's already too long.
4. What are the service product characteristics?
  - a. Simultaneity, Customer Participation, Homogeneity, Perishability.
  - b. Perishability, Intangibility, Time Consuming, homogeneity, Customer Participation, High Fixed Cost.
  - c. Intangibility, Simultaneity, Heterogeneity, Customer Involvement in the service process, Perishability.
  - d. Simultaneity, Heterogeneity, Invisibility, Customer Involvement in the service process, Perishability.

5. Which is the most probable decision you can find if a company decides to drive digital transformation through lean principles.
- a. IoT for making data available to operators for taking decision.
  - b. Automations in order to exploit new technologies for increasing capacity.
  - c. Investments in real time scheduling.
  - d. Supplier visibility on forecasts, orders and inventories in order to anticipate stockouts.
6. Consider a manufacturing company producing shirts and define which activity is value adding.
- a. Perform a quality control on the color of the shirts before delivering them to the customers.
  - b. Sew the buttons on the shirts.
  - c. Bring the toolkit to the right place.
  - d. Clean the stations.
7. In the HQ case, which level should you implement in order to improve flexibility performance?
- a. Increase capacity saturation.
  - b. Split production capacity in larger number of machines.
  - c. Launch production of big batches in order to reduce setups.
  - d. Increase automation grade in order to produce faster.
8. Shotter SpA produces pencil and works with 2 shifts ( $T_a=900$  min/day). The average is 300 pencil/day. There are two production stages, both fully dedicated and with availability of 100%: P1(CT=30 sec/pencil; CO=5 min/setup) and P2(CT=25sec/pencil; CO=0 min/setup). Which is the minimum Batch Size for the company?
- a. MBS = unitary batch.
  - b. MBS = 2 pencil/batch.
  - c. MBS = 150 pencil/batch.
  - d. It depends on customers' requests.

9. What are the “PROs” of lagging strategy for capacity management?
- a. Lower impact of uncertainty and unforeseen events and low production costs.
  - b. Higher impact from understanding demand, longer response time and lower delivery reliability.
  - c. Lower impact from overestimating demand, low production costs and high plant utilization.
  - d. Lower impact from overestimating demand, spare part capacity and faster response time.
10. Usually, comparing SES company with a traditional company, SES company has
- a. Higher fixed cost and higher price.
  - b. Higher fixed cost and lower price.
  - c. Lower fixed cost and lower price.
  - d. Lower fixed cost and higher price.
11. Which structural elements strengthen the concept of Shouldice?
- a. Double rooms for patients, meeting rooms (as tea room or TV room), special stairs, surgery rooms with U-shape (as manufacturing cells).
  - b. Surgery rooms with U-shape which reinforce the teamwork concepts among medical staff.
  - c. Double rooms for patients, meeting rooms (as tea room or TV room) and meetings with employees and patients within the canteen.
  - d. Special stairs designed ad hoc, which enable patients to recover fast from the hernia surgery.
12. Considering a theme park service company, which of the following options could be considered an outcome of the company?
- a. Helpful staff, never a dull moment and enjoyable attractions.
  - b. Good food and 18 rides used.
  - c. Food outlets, toilets and white knuckle rides.
  - d. Easy parking, lots of rides and fun time.

13. For Shouldice hospital, which are the drawbacks of opening a second clinic (even outside Canada)?

- a. The difficulties of replicating the same concepts, specially for what regards soft elements (bond among doctors and staff, relationship with patients, and the standard procedure of hernia surgery).
- b. The difficulties of replicating the same concept, especially for what regards hard elements (patients rooms, stairs, surgeries rooms with U-shape...)
- c. The difficulties in guaranteeing the same duration and predictability of hernia surgeries.
- d. The difficulties in hiring new doctors and staff.

14. For the Shouldice hospital, which are the drawbacks of opening on Saturday?

- a. There are no drawbacks for this solution, and therefore is the one applied by Shouldice hospital.
- b. Clients are not satisfied because the service provided is not exactly equal to the one provided during week.
- c. Lower bond among doctors and staff, because there was the creation of two sub-groups (one working only during weeks and one working also on Saturdays) and service provided and Saturdays not exactly equal to the one provided during week.
- d. Not enough rooms available to guarantee 4 days of patients recovery, therefor the solution is not applicable.

15. Lean Innovation concepts drive R&D teams to tackle wastes in order to:

- a. Reduce time necessary to perform market research.
- b. Reduce time devoted to product features not desired by customers.
- c. Reduce time for finding new customers.
- d. Execute many projects simultaneously.

16. In a bar, the barman is able to serve 2 people every 8 minutes. The arrival rate of clients has been estimated to be around 10 people every hour. Estimate the saturation of the barman.

- a. 0.5
- b. 0.2
- c. 1.5
- d. 0.67

17. Which characteristic belongs to a performance that is classified as Order Qualifier?

- a. The performance defines the competitive advantage of the company.
- b. If company's performance improves, the company gains more order.
- c. Company's quality performance is very good.
- d. If company's performance gets worse, the company loses order.

18. Which characteristic belongs to a single queue with respect to multiple queue?

- a. More service diversification.
- b. More variability in the system.
- c. Balking actions are less frequent.
- d. Less variability in the system.

19. Which is the longest time in an operations system?

- a. Throughput time.
- b. Value adding time.
- c. Lead time.
- d. Not-value adding time.

20. Esselunga, as per health guidelines, adopted an M/M/1 configuration for the waiting line outside the supermarket. How does the average throughput time of that system change when prioritizing over 65-year old over other customers?

- a. It decreases.
- b. It Increases
- c. It depends on peak times.
- d. It remains unchanged.

21. You are a manager of a restaurant; if your service process (output) is affected by uncertainty, which lever do you invest in?

- a. Reservation system
- b. Training
- c. Standardization of activities
- d. Increasing employees participation in process improvement.

22. What are the benefits of small scale increments?

- a. Financing availability
- b. Economies of scale
- c. Over utilization costs
- d. None of the answers

23. In a service company, which benefits does centralization of back-office activities give?

- a. Shorter lead-teams
- b. Less volume variability
- c. Activities overlapping.
- d. Greater flexibility

24. In a store there are 5 people waiting in line for the payment. There are 2 cash counters and the service rate of each cashier is 2 people every 10 minutes. Each cashier has its own queue. What is the queue configuration?

- a.  $2M/M/2$
- b.  $2M/M/1$
- c.  $M/M/5$
- d.  $M/M/2$

25. How would you define the Heuristic EMSR method?

- a. An iterative method used to maximize the profit by appropriately allocating the available capacity whenever there are only three classes of customers. The computation starts from the cheapest class.
- b. An iterative method used to maximize the profit by appropriately allocating the available capacity whenever there are only three classes of customers. The computation starts from the most expensive class.
- c. An iterative method used to maximize the profit by appropriately allocating the available capacity whenever there are more than two classes of customers. The computation starts from the most expensive class.
- d. An iterative method used to set the right overbooking strategy by appropriately allocating the available capacity whenever there are more than two classes of customers. The computation starts from the cheapest class.

26. Investing in cross-trained employees supports company:

- a. Increase time-buffer for customers.
- b. Reducing demand variability.
- c. Increase overall capacity.
- d. Making capacity more flexible.

27. During SMED:

- a. Internal activities are moved to the beginning or to the end of setup procedure.
- b. Products are batched in order to reduce setups.
- c. External activities are moved to the beginning or to the end of setup procedure.
- d. Setup activities are automatized.

28. What are the “PROs” of leading strategy for capacity management?

- a. Lower impact of unforeseen events and underestimating demand, spare parts, capacity, better delivery and reliability.
- b. Lower production costs, lower impact from overestimating demand, high plant utilization.
- c. Lower impact of unforeseen events, high plant utilization, better delivery reliability.
- d. Outbound cash flow, higher impact from overestimating demand, higher production costs.

29. Which is the most probable decision you can find if a company decide to drive digital transformation through lean principles:

- a. Automations in order to exploit new technologies for increasing capacity.
- b. HMI technologies in order to improve flexibility of operators.
- c. RFID technologies in order to track real time product status.
- d. Machine learning for planning in order to reduce number of setups.

30. Schnay company produces only standard products and has an EPE equal to -0,76 days. Which indication does the company take?

- a. Schnay company is able to produce the whole volume but not the mix.
- b. Schnay company is sure to produce both volume and mix required by customers.
- c. Schnay company has not enough capacity to fulfill demand volume.
- d. Schnay company needs SMED to reduce setup time.



31. According to KDAM (key decisional area matrix), DHL transport services belongs to cluster:

- a. Service project.
- b. Service factory.
- c. DIY service
- d. Service partnership.

32. With Pre-Shop-Pool and workload control planning, the company:

- a. Reduces setups.
- b. Reduces WIP and Shop-floor time.
- c. Controls the production and reduces necessity of manpower.
- d. Immediately releases production orders to shorten lead-time.

33. Choose the one correct answer:

- a. Protection level of discounted tickets is necessary to avoid cannibalization from full price tickets.
- b. Protection level of full price tickets is necessary to avoid cannibalization from discounted price tickets to ensure profit maximization and cover all the seats available.
- c. Having fixed capacity of event's seats, we should start selling full price tickets to ensure profit maximization and over all the seats available.
- d. In order to maximize my revenues, it is more convenient to sell all tickets to low cost passengers as I am sure they will buy them all

34. In the HQ case, which of the following is not a consistent "structural choice" according to the new market?

- a. Increasing the capacity in order to absorb demand variability.
- b. Mono-impression molding in order to ensure lower setup times.
- c. Small number of big production machines in order to ensure machine saturation.
- d. Low automation grade.

35. Which of the following sentences about the future state map is wrong?

- a. Once you draw the current state map, you must find improvements area and then draw the future state map. It exists only one future state map for each current state.
- b. The aim of the future state map is to couple all production stages. If you are not able to do so, you can decouple stages with supermarket pull system.
- c. The aim of the future state map is to reduce the overall process lead time of the company.
- d. You need to define (1) material flow, (2) information flow and (3) timeline.