

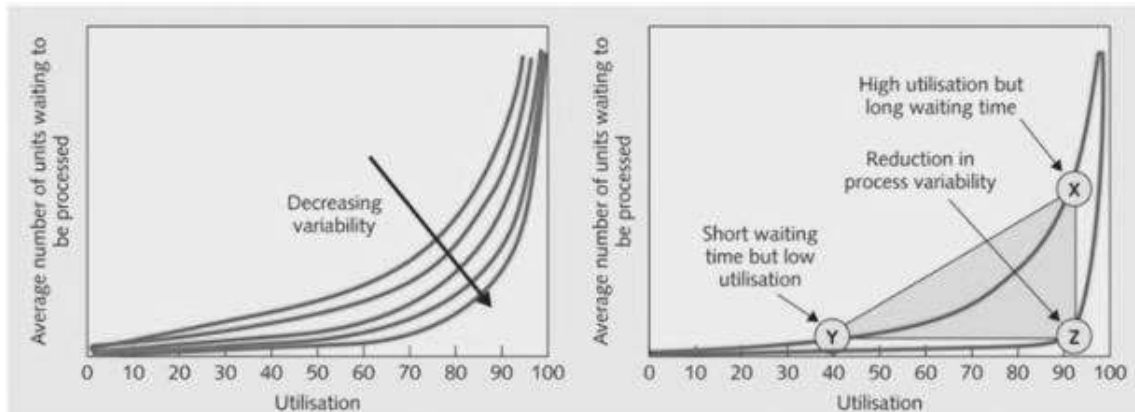


## MCQ - Operation Management Possible Solutions

Operations management (Politecnico di Milano)

## QUEUE

- In a store there are 5 people waiting in line for the payment. There are 2 cash counters and the service of each cashier is 2 people every 10 minutes. Each cashier has its own queue. What is the queue configuration?
  - 2M/M/2
  - 2M/M/1**
  - M/M/5
  - M/M/2
- Chose the one correct answer regarding the graph with X being the AS-IS situation



- To move from X to Y, we want to reduce the average number of units in line, we should reduce the utilization rate by reducing the number of resources
  - Process variability results in simultaneous waiting and resources underutilization**
  - In order to move from X to Z, we should reduce system variability by introducing more resources
  - All the answers are correct
- 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. Estimated the saturation of the barman.
    - 0.5
    - 0.2
    - 1.5
    - 0.67**
  - In a grocery, there are 4 people waiting in line for the payment. There are 3 cash counters, and the service rate of each cashier is 2 people every 10 minutes. The clients are served by the 2 cashiers following a FIFO approach in one single line. What is the queue configuration?
    - 3MM1
    - MM3**
    - MM4
    - 3MM4
  - In a grocery, 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. The clients are served by the 2 cashiers following a FIFO approach in one single line. What is the queue configuration?
    - 2 M/M/2
    - 2 M/M/1
    - M/M/5
    - M/M/2**
  - Choose only one correct answer regarding the customer behaviour in a queuing system modelling
    - Rejecting is when a customer already in the queue gives up the service and goes away without being served
    - Balking is when a customer already in queue gives up the service and goes away without being served
    - Reneging is when a customer already in queue gives up the service and goes away without being served**
    - Reneging is when a customer decides not to enter a queue because it is already too long
  - In a COVID testing clinic, a patient enters the waiting area then the testing area then the payment area. Which is the average number of patients in the clinic knowing that the average number of people in each of the areas are 2, 3 and 4 respectively? Single choice.
    - Max of all  $L_s=4$
    - $L_s=2+3+4=9$**
    - $L_s=2*3*4=24$
    - $L_s=(2+3+4)/3=3$

8. In a COVID testing clinic, a patient enters the waiting area then the testing area and then the payment area. How much is the probability of the system being empty knowing that the probabilities of each of the subsystems being empty are 0.1, 0.2, 0.3 respectively?
- A.  $P = \max \text{ of all probabilities} = 0.3$
  - B.  $P = 0.1 + 0.2 + 0.3 = 0.6$
  - C.  **$P = 0.1 \cdot 0.2 \cdot 0.3 = 0.006$**
  - D.  $P = (0.1 + 0.2 + 0.3) / 3 = 0.2$
9. For the passport control, Malpensa airport adopts a single queue configuration while Istanbul airports multiple queue configuration. Considering the same number of servers, choose the correct answer.
- A. Malpensa's average throughput time is longer and no balking happens
  - B. In either airports, no passenger enters and leaves without being served, but Istanbul's configuration scares passengers
  - C. **Istanbul focuses more on improving customer perception while Malpensa focuses on FCFS to try reduce the overall waiting time**
  - D. Diversification of the service is more important for Malpensa than for Istanbul
10. 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.**
11. 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.**
12. In front of a theater, 10 people are waiting for the hostess to be admitted to the show. In one minute she is able to check the ticket of the customer and admit him to the show. What is the distribution the best describe the service process in the system
- A. Normal
  - B. **Poisson**
  - C. **Negative Exponential**
  - D. Standard Normal

**OPERATION STRATEGY**

1. With Pre-Shop-Pool and workload planning, the company :
  - A. Reduces WIP and Shop-Floor time**
  - B. Controls the production and reduces necessity operators
  - C. Reduces setups
  - D. Immediately releases production orders to shorten lead-time
2. When orders in Pre-Shop-Pool reach the upper limit, the company should:
  - A. Decrease order intake**
  - B. Foster sales
  - C. Decrease capacity
  - D. Selling shorter delivery time to customer
3. What are the PROs for the leading strategy for capacity management?
  - A. Lower impact of unforeseen events and underestimating demand, spare parts capacity, better deliver reliability**
  - B. Lower production costs, lower impact from overestimating demand, high plant utilization
  - C. Lower impact of unforeseen events, high plant utilization, spare parts capacity, better delivery reliability
  - D. Outbound cash flow, higher impact of overestimating demand, higher production costs
4. What are the "CONS" of the leading strategy for capacity management?
  - A. Outbound cash flow, higher impact from overestimating demand, higher production costs**
  - B. Lower impact of unforeseen events, high plant utilization, better delivery reliability
  - C. Lower production costs, lower impact from overestimating demand, high plant utilization
  - D. Lower impact of unforeseen events and underestimating demand, spare parts capacity, better delivery reliability
5. 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.
6. In the service industry, the level of satisfaction of a customer has been defined
  - A. By the experience
  - B. As the difference between the expectation and the service price
  - C. As the difference between perception and expectation**
  - D. By the experience of the outcome
7. What are the service product characteristics?
  - A. Simultaneity, customer participation, homogeneity, perishability
  - B. Perishability, intangibility, time consuming, homogeneity, customer participation
  - C. Intangibility, simultaneity, heterogeneity, customer involvement in the service process, perishability**
  - D. Simultaneity, heterogeneity, invisibility, customer involvement in the service process, perishability
8. How would you compute the variability?
  - A. The difference between the average value and the actual value**
  - B. The difference between the average value and the forecasted value
  - C. The difference between the average value and the forecasted value
  - D. The difference between the actual value and the forecasted value
9. Investing in cross-trained employees supports company to
  - A. Reduce demand variability
  - B. Make capacity more flexible**
  - C. Increase time-buffer for customers
  - D. Increase overall capacity
10. Which characteristic belongs to a professional service shop compared to professional service?
  - A. More attention to quality
  - B. Request of knowledge sharing**
  - C. Less attention to cost
  - D. More product innovation
11. You are a manager of a restaurant; if your service process (output) is affected by variability, which lever do you invest in?
  - A. Reservation system**
  - B. Promotion
  - C. Standardization of activities**
  - D. Increase customer participation in the process

12. 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. Increase customer participation in the process improvement
13. Which characteristic belongs to a performance that is classified as Order Qualifier?
- A. Company's quality performance is very good
  - B. If company's performance improves, the company gains more orders
  - C. **If company's performance gets worse, the company loses orders**
  - D. The performance defines the competitive advantage of the company
14. What are the benefit of small scale capacity increments compared to big scale increments?
- A. **Financing availability**
  - B. Economies of scale
  - C. Over utilization costs
  - D. **None of the answers**
15. Which characteristic belongs to a professional service shop compared to mass service?
- A. Attention to price
  - B. **Attention to customer specific requirements**
  - C. Attention to quality
  - D. Process innovation
16. Considering a theme park service company, which of the following options could be considered an outcome of the company?
- A. Food outlets, toilets and white knuckle riders
  - B. Easy parking, lots of rides and fun time
  - C. **Good food and 18 rides used**
  - D. Helpful staff, never a dull moment and enjoyable attractions
17. 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.
18. 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.
19. The role of the "deliberate strategy" in the operations strategy of a company is
- E. **To define a clear line to take many little good choice**
  - F. To define investment in new technologies
  - G. To reach the gap with premium class competitors
  - H. To exploit opportunities emerging from the field in turbulent environment
20. Operations capabilities are classified as "externally supportive" if they
- A. Hold the organization back
  - B. **Are clearly the best industry**
  - C. **Redefine industry expectations**
  - D. Are as good as competitors
21. Which is the shortest time in an operations system
- A. Lead time
  - B. **Value adding time ?**
  - C. Throughput time
  - D. Not value adding time
22. PDCA is a methodology for
- A. **Adopting scientific approach in problem setting and problem solving**
  - B. Reducing level of stocks in production department
  - C. Optimizing space occupied in assembly line
  - D. Reducing time for implementing new solutions
23. Which characteristics belongs to a performance that is classified as Order Loser?
- A. company's quality performance is very good
  - B. **company is excluded as potential supplier by customer**
  - C. **if company's performance improves, the company has a competitive advantage against competitors ?**
  - D. the performance defines the competitive advantage of the company

24. Which characteristics belongs to a performance that is classified as order winner
- A. Company's price performance is very good
  - B. It is a company's base level offering
  - C. The performance defines the competitive advantage of the company**
  - D. If company's performance gets better, the company order remain unchanged
25. How would you compute "uncertainty"?
- A. The difference between the average value and the actual value
  - B. The difference between the average value and the forecasted value
  - C. The difference between the actual value and the expected value**
  - D. None of the answers
26. When introducing a priority of one customer typology over another, the throughput time of a system?
- A. Increase only if non pre-emptive priority
  - B. Increase only if pre-emptive priority
  - C. Remain unchanged**
  - D. Increases regardless of priority type
27. Linus company works for 900min/day and the daily demand of product family "A" is 2000. The packaging department is dedicated to the product family and it is able to pack the product in 12 different colors. The cycle time of this stage is 20 sec while the time to change the color of the packaging takes 4 minutes. The department is 100% available. Estimate the eye of the packaging.
- A. 0,206**
  - B. 0,052
  - C. -0,403
  - D. 1,234

## LEAN MANAGEMENT

1. The assembly stage of Ryccar Spa company process 5 variants of bikes and works 1350 min/day. Average demand is equal to 50 bikes/day. Assembly stage is fully dedicated, and its availability is 75%. Cycle time to assemble bikes is 18 min/bike. Assembly stage requires a setup every time the variant changes. Changeover time is equal to 35min/setup. Which of the following EPE for the assembly stage is the correct one?
  - A. **1.16 days**
  - B. 0.38 days
  - C. 1.45 days
  - D. 0.79 days
2. Which is the most probable decision you can find if a company decides to drive digital transformation through lean principles?
  - A. Automations in order to exploit new technologies for increasing capacity
  - B. HMI technologies in order to increase 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.
3. 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.
4. Consider a manufacturing company producing machine tools and define which activity is value adding:
  - A. Test a product before sending it to the customer
  - B. **Inserting a ball shift on its shaft**
  - C. Bring electric motors from the warehouse to the place where machine tool is assembled
  - D. Plan internal and external operators' activities for the next week
5. 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.
6. During SMED
  - A. Setup activities are automatized
  - B. Internal activities are moved to the begin or to the end of setup procedure
  - C. **External activities are moved to the begin or to the end of setup procedure**
  - D. Products are batched in order to reduce setups
7. During SMED
  - A. Reneging is when a customer decides not to enter a queue because it's already too long
  - B. Rejecting is when a customer decides to exit the system because she doesn't respect acceptance requirements
  - C. **Reneging is when a customer already in queue gives up the service and goes away without being served**
  - D. Balking is when a customer already in queue gives up the service and goes away without being served
8. Shotter Spa produces pencils and works with 2 shifts ( $T_a=900$  min/day). The average demand is 300 pencil/day. There are 2 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 of the company?
  - A. **MBS= 2 pencil/batch**
  - B. MBS= 150 pencil/batch
  - C. MBS= unitary batch
  - D. MBS= 230 pencil/batch
9. Considering an R&D department led by Lean Innovation concepts, which is the most probable context you can find?
  - A. Function Pushing for perfect learning cycle, launching product on the market only when all the features are completed
  - B. **Function Pushing for fast learning cycle through many small iterative projects**
  - C. Function Pushing for fast learning cycle with very big teams in order to have more resources on the same projects
  - D. Teams working at the same time on more projects in parallel
10. Which is the longest time in an operations system?
  - A. **Throughput time**
  - B. Value adding time
  - C. Cycle time
  - D. Not-value adding time

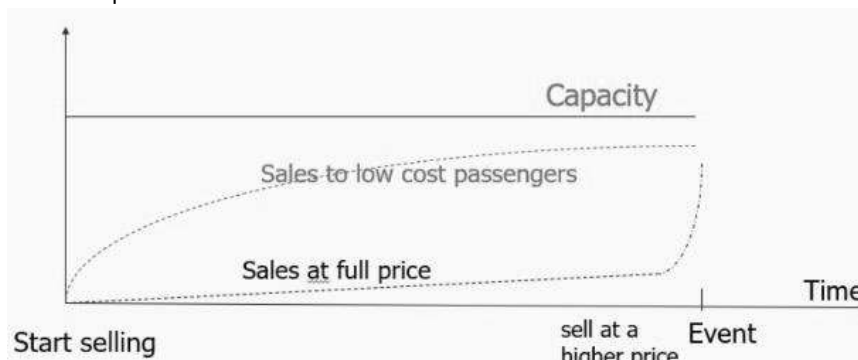
11. Which is the longest time in an operations system?
- A. Throughput time
  - B. Value adding time
  - C. Lead time**
  - D. Not-value adding time
12. Bendys Spa is a MTO company. Production process is made by 4 stages with the following EPE values: EPE(S1)=3.15 days; EPE(S2)=0.16 days; EPE(S3)=0; EPE(S4)=1.14 days. Which is the time period necessary to Bendys Spa to produce the whole mix and satisfy required by the customers?
- A. 3.15 days**
  - B. 1.14 days
  - C. It depends on the amount of stocks and raw materials
  - D. 1.1125 days
13. The impact of Heijunka box is
- A. Creating continuous flows
  - B. Reducing bullwhip effect**
  - C. Increase safety stocks
  - D. Reducing setups
14. DECAF conditions analysis supports managers in
- A. Increase availability of a cell
  - B. Defining optimal level of stocks
  - C. Improving planning of production
  - D. Understanding gap for creating continuous flow**
15. In a service company, which benefits does centralization of back-office activities give?
- A. Shorter lead-times
  - B. Less volume variability**
  - C. Activities overlapping
  - D. Greater flexibility
16. In a multiple queueing system, which are the benefits of centralization of back-office activities?
- A. Shortening of lead-time
  - B. Increasing of flexibility
  - C. Higher specialization**
  - D. Increasing customization
17. Station 1, Station 2 and Station 3 are part of the same line and they are decoupled by stocks, given the following data, indicate the correct answer: Time available= 20hours/day Cycle time (station 1)=22 seconds/piece Cycle time (station 2)=25 seconds/piece Cycle time (Station 3)=24 seconds/piece Availability 90% for station 1 and 100% for the others "
- 1. The daily production capacity is 2880 pieces/day**
  - 2. The daily production capacity is 3000 pieces/day
  - 3. The daily production capacity is 2945 pieces/day
  - 4. All the answers are wrong
18. 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.
19. 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.
20. 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.
21. 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.



22. Rank Order Clustering is a Lean practice for
- A. Reducing setups
  - B. Identifying wastes
  - C. Defining product families**
  - D. Creating the pull
23. Considering a production line, if you want to improve flexibility of planning, which lean technique do you execute?
- A. 5S
  - B. Kanban
  - C. SMED**
  - D. Value Stream Mapping
24. Cargo spa produces glasses ( $D=1000$  pieces/day) and it wants to have at maximum 5000 pieces/supermarket. With which frequency the supplier should deliver raw material
- A. Every 5 day
  - B. Every 3,33 days
  - C. Twice a day
  - D. Twice per working week (week=5 days)**
25. Sailor spa production process is made by 5 stages with the following eye: eye ( $s_1$ )=2,14 days; eve ( $s_2$ )=0 days; epe ( $s_3$ )=2,51 days; epe ( $s_4$ )=1,42 days; epe ( $s_5$ )=0,66 days. Which is the frequency according to which sailor spa is able to produce the whole volume and mix requirement by the customer:
- A. Every 2,51 days**
  - B. Every 1,346 days
  - C. It depends on the volume and mix required bu the customer
  - D. Every 0,66 days

## YIELD

1. Chose the only correct answer
  - A. Cost of underestimation includes the lost revenue associated with reserving too few seats as discounted fare (underestimated demand)
  - B. Cost of underestimation includes the cost of reserving too many seats at full fare (overestimated demand). As if the empty full-fare seat could have been sold at the discounted price
  - C. Cost of underestimation includes the lost revenue associated with reserving too few seats as full fare (underestimated demand)**
2. Chose the only correct answer
  - A. Cost of underestimation represents the lost revenues associated with reserving too few seats as full fare**
  - B. Cost of underestimation represents the lost revenue associated with reserving too few seats as discounted fare
  - C. Cost of underestimation represents the cost of reserving too many seats at full fare. As if the empty full-fare seat could have been sold at the discounted price
  - D. Cost of underestimation represents the lost profit associated with reserving too few seats as discounted fare.
3. How would you define the Heuristic EMSR method?
  - A. An iterative method used to set the right overbooking when there is no-show phenomenon
  - B. An iterative method used to maximize the profit by appropriately allocating the available capacity whenever there are more than 2 classes of customers**
  - C. An iterative method used to maximize the profit by appropriately allocating the available capacity whenever there are less than 3 classes of customers
  - D. An iterative method used to set the right overbooking strategy by appropriately allocating the available capacity whenever there are more than 2 classes of customers
4. How would you define the Heuristic EMSR method?
  - A. 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.
  - 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 cheapest class.
  - C. An iterative method used to maximize the profit by appropriately allocating the available capacity whenever there are no more than two classes of customers. The computation starts from the most expensive class**
  - D. An iterative method used to maximize the profit by appropriately allocating available capacity whenever there are only three classes of customers. The computation starts from the most expensive class.
5. Which of these sets of characteristics represent the ideals for yield management?
  - A. Variable capacity, perishable inventory, low capacity-change costs, and product booked in advance
  - B. Fixed capacity, perishable inventories, low capacity-change cost, and ability to segment markets
  - C. Perishable inventory, high capacity-change costs, product sold after its use and fixed demand
  - D. Fixed capacity, perishable inventory, high capacity-change costs, ability to segment market, fluctuating demand and products booked or sold in advance**
6. Choose only one correct option



- A. In order to maximise my revenues, it is more convenient to sell all tickets to low-cost passengers as I am sure they will buy them all
  - B. Having fixed capacity of event's seats, we should start selling full price tickets to ensure profit maximisation and cover all the seats available
  - C. Protection level of full price customers is necessary to avoid cannibalization from discounted price tickets**
  - D. Protection level of discounted price tickets is necessary to avoid cannibalization from full price tickets
7. Choose the 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.

8. Which of the following system characteristics make YM not useful?
- A. Possibility to buy/book in advance the product/service
  - B. Products are perishable
  - C. System's variable capacity**
  - D. There are different types of customers (segments)
9. Choose the correct sentence.
- A. The no-show phenomena characterize only discounted price customers
  - B. The no-show phenomena characterize only full price customers
  - C. The no-show phenomena could characterize both full and discounted price customers**
  - D. The no-show phenomena cannot be managed with the overbooking
10. Which type of company can benefit from implementing Yield Management
- A. only companies that provide a service to customers
  - B. only companies belonging to specific industries (example transportation or entertainment) that have fixed capacity and want to maximize their profit
  - C. any kind of companies able to segment the market that have fixed capacity and perishable inventory, high capacity change cost, uncertain demand and possibility to sell/book products in advance**
  - D. only service companies able to segment the market that have fixed capacity and perishable inventory, high capacity change cost, uncertain demand and the possibility to sell/book product in advance
11. Calculate the revenues of an event knowing that it can hold up to 500 participants, Full price = 200 €, Discounted price = 100 €, PL = 240, and full price ticket holders get to have as a gift a gadget at the day of the event that costs 15€.
- A.  $R = (200 - 15) \cdot X + (500 - 240) \cdot X$
  - B.  $R = 200 \cdot 240 + 100 \cdot (500 - 240)$**
  - C.  $R = (200 + 15) \cdot X + (500 - 240) \cdot 100$
  - D.  $R = 200X + (500 - 240) \cdot 100$
12. For a local event, one can buy a 20-day advance ticket for only 50€. The regular full-fare price for the ticket is 70€. Participants of the events will be offered a buffet for 20€ per person, the dinner expenses are provided by a local sponsor
- A.  $C_u = 70 - 50 = 20$**
  - B.  $C_u = 70 - 50 - 20 = 0$
  - C.  $C_u = 70 - 50 + 20 = 40$
  - D.  $C_u = 70$
13. Knowing that the probability to sell a number of tickets for a gala dinner less than 190 equals to 80% and the demand is described by a normal distribution with mean 150 and  $Z = 1.25$ , how much is the standard deviation?
- A.  $\sigma = 152$
  - B.  $\sigma = 32$**
  - C.  $\sigma = 120$
  - D.  $\sigma = 0.2$
14. An apparel shop want to determine by yield management the number of dresses to be ordered for the next season collection. Consider that dresses ordered but not sold at the end of the season are all sold by lowering the price by 50% from 400€/pc to 200€/pc (the purchase costs 250€/pc), which value is  $p(x < s)$ ?
- A. 0,33
  - B. 0,67
  - C. 0,5
  - D. 0,75**
15. For a local flight in Italy one can buy a 14-day advance purchase fare for only 49€, the regular full price for local flight is 60€. On average all type of passengers but directly on the flight a brioche that costs 3€ and coffee for 2€; choose the correct answer.
- A.  $C_o = 49 + 2 + 3 = 54$**
  - B.  $C_o = 49$
  - C.  $C_o = 49 - 2 - 3 = 44$
  - D.  $C_o = 49 - 2 + 3 = 50$
16. Inserting a last-minute ticket, a company adopting yield management.
- A. Increasing the protection level**
  - B. Decreasing the protection level
  - C. Increasing both protection level and seat for discounted rate
  - D. Not impacting on protection level

## CASES

1. In the HQ case, which lever should you implement in order to improve flexibility performance?
  - A. Split production capacity in higher number of machines**
  - B. Increase capacity saturation
  - C. Launch production of big batches in order to reduce setups
  - D. Increase automation grade in order to produce faster
2. In the HQ case, which lever should you implement in order to improve cost performance?
  - A. Split production capacity in higher number of machines
  - B. Increase capacity in order to absorb variability through extra-capacity
  - C. Launch production of big batches in order to reduce setups**
  - D. Decrease automation grade
3. Shouldice Hospital plays mainly on 2 levers to provide customers with such a high well-recognized value. Which are them?
  - A. High specialization (only one surgery) and high competences of its own employees**
  - B. High specialization and low price
  - C. High competences of its own employees that enable Shouldice to deliver above- average quality
  - D. Low price and competences of its own employees
4. In the HQ case, which are the most significant performances to compete in the new market?
  - A. Time (speed), flexibility (product and plan) and quality of design**
  - B. Time (speed), price and flexibility (variety)
  - C. Quality (conformity) and time (delivery reliability)
  - D. Price and quality of design
5. In the HQ case, which are the most significant performances to compete in the consolidated market?
  - A. Time (speed)
  - B. Price**
  - C. Quality (design)
  - D. Quality (conformity)
6. Shouldice Case represents a “best practice” of alignment between market and operations. How is its concept built?
  - A. The concept of Shouldice hospital is based on both outcome and experience provided to the patients**
  - B. Shouldice hospital built its concept on the outcome, namely the high success rate in the hernia surgery
  - C. Shouldice hospital built its concept on the short and predictable time required to patients to recover from hernia surgery
  - D. The concept of Shouldice hospital is based on the low price for hernia surgery compared to competitors
7. In the HQ case, which of the following is not a consistent “structural choice” according to the new market?
  - A. Small number of big production machines in order to ensure machine saturation**
  - B. Increasing the production capacity in order to absorb demand variability
  - C. Mono-impression moulding in order to ensure lower setup times
  - D. Low automation grade
8. Which managerial and organizational elements strengthen the concept of Shouldice?
  - A. Being able to provide the Hernia surgery in day hospital (short and predictable time)
  - B. Presentation on the surgery held by the medical staff to patients and the possibility for the patients to meet both employees and other patients in the canteen to share experience.**
  - C. Making patients wait a long time before being accepted by the hospital (long queue) in order to make them aware of the value of the service provided.
  - D. Frequent interviews to patients not satisfied by other hospitals in better defining operations.
9. In the HQ case, which of the following is not a consistent decision according to the consolidated market?
  - A. Incentives systems based on quality conformance and delivery speed objectives**
  - B. Customer base made of few big customers
  - C. Meeting the demand according to MTS logic
  - D. Work procedures strictly recommended
10. 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.
11. In the HQ case, why is it good choice for the new market to have extra-capacity?
  - A. Because it allows to overproduce and so to have stocks of demand
  - B. Because it impacts on product quality and so on customer satisfaction
  - C. Because it allows to absorb possible fluctuations in demand volume without using stocks**
  - D. because it allows to exploit economies of scale

12. In HQ case, on which performance does the choice of investing in a small number of big machines impact?
- A. **higher quality of design thanks to better setting of machines**
  - B. lower flexibility of plan thanks to lower number of required setups
  - C. **higher speed (time) thanks to shorter cycle time**
  - D. higher price thanks to low number of employees needed
13. In the new market for HQ
- A. customers require a large variety of products so then after-sales service is required to assist clients.
  - B. customers require a small variety of products that are ordered in advance.
  - C. customers require a small variety of products so the focus is on product flexibility.
  - D. **Customers require a large variety of products so then variety and flexibility performance play a key role.**
14. Shouldice hospital is facing an increase in demand that is not able to fulfill with the actual capacity. Which are the possible alternatives?
- A. **Increasing the internal capacity 8extending doctors working hours, opening on Saturdays, hiring new doctors), opening a second clinic (even outside Canada) or starting a collaboration with other clinics.**
  - B. Extending the doctors working hours or working on Saturdays with already existing staff or opening a second clinic (even outside Canada)
  - C. Having a mismatch between demand and capacity is done on purpose, so thus no alternatives are evaluated.
  - D. Hiring new doctors and staff to increase the internal capacity of the hospital
15. 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.
16. 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.