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4. Considering a theme park service company, which of the following options could be considered an outcome of the company?
- food outlets, toilets and white knuckle rides
 - easy parking, lots of riders and fun time
 - good food and 18 rides used
 - helpful staff, never a dull moment and enjoyable attractions
5. The role of the “deliberate strategy” in the operations strategy of a company is
- to define a clear line to take many little good choice
 - to define investment in new technologies
 - to reach the gap with premium class competitors
 - to exploit opportunities emerging from the field in turbulent environment
6. Which type of company can benefit from implementing Yield Management
- only companies that provide a service to customers
 - only companies belonging to specific industries (example transportation or entertainment) that have fixed capacity and want to maximize their profit
 - 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
 - only service companies able to segment the market that have fixed capacity and perishable inventory
7. In the HQ case, why is it good choice for the new market to have extra-capacity?
- because it allows to overproduce and so to have stocks to absorb peaks of demand
 - because it impacts on product quality and so on customer satisfaction
 - because it allows to absorb possible fluctuations in demand volume without using stocks
 - because it allows to exploit economies of scale
8. Rank Order Clustering is a Lean practice for
- reducing setups
 - identifying wastes
 - defining product families
 - creating the pull
9. Operations capabilities are classified as “externally supportive” if they
- hold the organization back
 - are clearly the best industry

- ☒ - redefine industry expectations
- are as good as competitors

10. Which is the shortest time in an operations system?

- lead time
- ☒ - value adding time
- throughput time
- not value adding time

11. Which characteristic belongs to a professional service shop compared to a professional service?

- attention to quality
- ☒ - request of knowledge sharing
- attention to conformance
- product innovation

12. Considering a manufacturing company producing machine tools, define which activity is value adding

- ☒ - inserting a ball bearing on its shaft
- planning internal and external operators activities for the next week
- testing a product before sending it to the customer
- bringing the electric motors from the warehouse to the place where the machine tool is assembled

13. The assembly stage of Ryccar Spa company processes 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 change. Changeover time is equal to 35 min/setup. Which of the following EPE for the assembly stage is the correct one?

- EPE = 0,79 days
- ☒ - EPE = 1,16 days
- EPE = 1,45 days
- EPE = 0,38 days

14. When orders in Pre-Shop-Pool reach the upper limit, the company should:

- ☒ - decrease order intake
- foster sales
- decrease capacity
- selling shorter delivery time to customer

15. PDCA is a methodology for:

- adopting scientific approach in problem setting and problem solving
- reducing level of stocks in production department
- optimizing space occupied in assembly line
- reducing time for implementing new solutions

16. The impact of Heijunka box is:

- reducing bullwhip effect
- reducing setups
- increasing safety stocks
- creating continuous flow

17. Which characteristics belongs to a performance that is classified as Order Loser?

- company's quality performance is very good
- company is excluded as potential supplier by customer
- if company's performance improves, the company has a competitive advantage against competitors ∞
- the performance defines the competitive advantage of the company ∞

18. In HQ case, on which performance does the choice of investing in a small number of big machines impact?

- higher quality of design thanks to better setting of machines
- lower flexibility of plan thanks to lower number of required setups
- higher speed (time) thanks to shorter cycle time
- higher price thanks to low number of employees needed

19. According to KDAM (Key Decisional Area Matrix), DHL transport services belongs to cluster

- service project
- service factory
- DIY service
- Service partnership

20. Which managerial and organizational elements strengthen the concept of Shouldice?

- being able to provide the hernia surgery in day hospital (short and predictable time)
- 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
- frequent interviews to patients not satisfied by other hospitals in better defining operations

- 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

21. How would you compute “uncertainty”?

- The difference between the average value and the actual value
- The difference between the average value and the forecasted value
- The difference between the actual value and the expected value
- None of the answers

22. How would you define the Heuristic EMSR method?

- 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.
- 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.
- 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.
- 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.

23. In the new market for HQ

- customers require a large variety of products so then after-sales service is required to assist clients.
- customers require a large variety of products so then variety and flexibility performance play a key role.
- customers require a small variety of products that are ordered in advance.
- customers require a small variety of products so the focus is on product flexibility.

24. What are the “CONS” of the leading strategy for capacity management?

- lower impact of unforeseen events and underestimating demand, spare parts capacity, better delivery reliability.
- lower production costs, lower impact from overestimating demand, high plant utilization.
- lower impact of unforeseen events, high plant utilization, better delivery reliability.
- outbound cash flow, higher impact from overestimating demand, higher production costs.

25. Choose the correct sentence:

- The no-show phenomenon cannot be managed with the overbooking.
- The no-show phenomenon characterises only full price customers.
- The no-show phenomenon could characterise both full and discounted price customers.

- The no-show phenomenon characterises only discounted price customers.

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

- Shorter lead-times
- ☒ Less volume variability
- Activities overlapping
- Greater flexibility

27. Calculate the **revenues** of an event knowing that it can hold up to 500 participants, Full price = 200 euros, Discounted price = 100 euros, PL = 240, and full price ticket holders get to have as a gift a gadget at the day of the event that costs 15 euros.

- ☒ $R = 200X + (500 - 240) * 100$
- $R = (200 - 15) * X + (500 - 240) * X$
- $R = 200 * 240 + 100 * (500 - 240)$
- $R = (200 + 15) * X + (500 - 240) * 100$

28. 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?

- $P = \max \text{ of all probabilities} = 0.3$
- $P = 0.1 + 0.2 + 0.3 = 0.6$
- ☒ $P = 0.1 * 0.2 * 0.3 = 0.006$
- $P = (0.1 + 0.2 + 0.3) / 3 = 0.2$

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

- ☒ Reduce time devoted to product features not desired by customers
- Reduce time for finding new customers
- Execute many projects simultaneously
- Reduce time necessary to perform market research

30. Considering a production line, if you want to improve flexibility of planning, which lean technique do you execute?

- 5S
- ☒ Kanban
- SMED
- Value Stream Mapping

31. What are the benefits of small-scale capacity increments compared to big scale increments?

- Financing availability
- ☒ None of the answers
- Over utilization costs
- Economies of scale

32. 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

- ☒ $C_u = 70 - 50 = 20$
- ☐ $C_u = 70 - 50 - 20 = 0$
- ☐ $C_u = 70 - 50 + 20 = 40$
- ☐ $C_u = 70$

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

- ☐ The difficulties of replicating the same concept, especially for what regards hard elements (patients' rooms, stairs, surgery rooms with U shape...)
- ☐ The difficulties in guaranteeing the same duration and predictability of hernia surgeries
- ☐ The difficulty in hiring new doctors and staff
- ☒ The difficulties of replicating the same concept, especially for what regards soft elements (bond

34. Which is the most probable decision you can find if a company decides to drive digital transformation through lean principles?

- ☐ Automations in order to exploit new technologies for increasing capacity
- ☒ IoT for making data available to operators for taking decision
- ☐ Investment in real time scheduling
- ☐ Supplier visibility in forecasts, orders, and inventories in order to anticipate stock-outs

35. Lean organizations are characterized by

- ☒ Flat organization composed by many small teams, high levels of power delegation to people
- ☐ Flat organization composed by few large teams, high level of power delegation to team officers
- ☐ Hierarchical organization composed by few large teams, low levels of power delegations to team officers
- ☐ Hierarchical organization composed by many large teams, low level of power delegation to people

36. 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?

- ☐ $\sigma=152$
- ☒ $\sigma=32$
- ☐ $\sigma=120$
- ☐ $\sigma=0.2$

37. Shouldice hospital plays mainly on two main levers to provide customers with such a high well-recognized value. Which are those levers?

- ☐ High specialization and low price
- ☒ High specialization (only one surgery) and high competence of its own employees
- ☐ Low price and high competences of its own employees
- ☐ High competences of its own employees that enable Shouldice to deliver above-average quality

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

- ☒ Standardization of activities

- Increasing customer participation in the process
- Reservation system
- Promotion