

OPS. MAN. EXAM - 12/01/24 - MCQ - Prof. Portioli - Traditional Teaching - Room B8 2.2

- Choose the correct answer for each question - just one answer is the correct one
- You do not lose points if you choose a wrong answer
- You have 35 minutes to submit from the opening of this form
- Check the time and Submit before the deadline, the starting time and submitting time are stored automatically by the system
- This is NOT an open book exam, you cannot use your notes, books, slides of the course or surf the internet
- You are not allowed to communicate with others during the exam

1. Input Your Personal Code (the 8-digit one) *

10964330

2. Input your Surname *

Jandaghian

3. Input your Name *

Amirhossein

✉ Will be reviewed

4. In the assembly department, there are three operators that work in parallel. Their workcontent is equal to 15 min/piece. Which is the cycle time of department? *

CT = 5 min/piece

CT = 45 min/piece

CT = 15 min/piece

It depends on the Time available

✉ Will be reviewed

5. The system works 10 hours/day and daily demand is 100 units. The range variety is 10 items, all requested every day. Having a Cycle time equal to 6 min/piece and a change over time equal to 10 min with an availability equal to 100%, which one of the following statement is false: *

The total time devoted to set-up in a day is equal to 100 minutes

The system batch the production of each single item

The time to process is equal to 600 min

The company can satisfy the demand in make to order

✉ Will be reviewed

6. In a COVID testing clinic, there are 3 areas, a patient enters the waiting area than the testing area then the payment area. Which is the probability of having less or equal than 5 patients in the payment area knowing that on average 2 patients have discounts and $P(n < k) = 1 - p^k$; with $p = 20/40$? *

$P = 1 - (20/40)^6 = 0.984375$

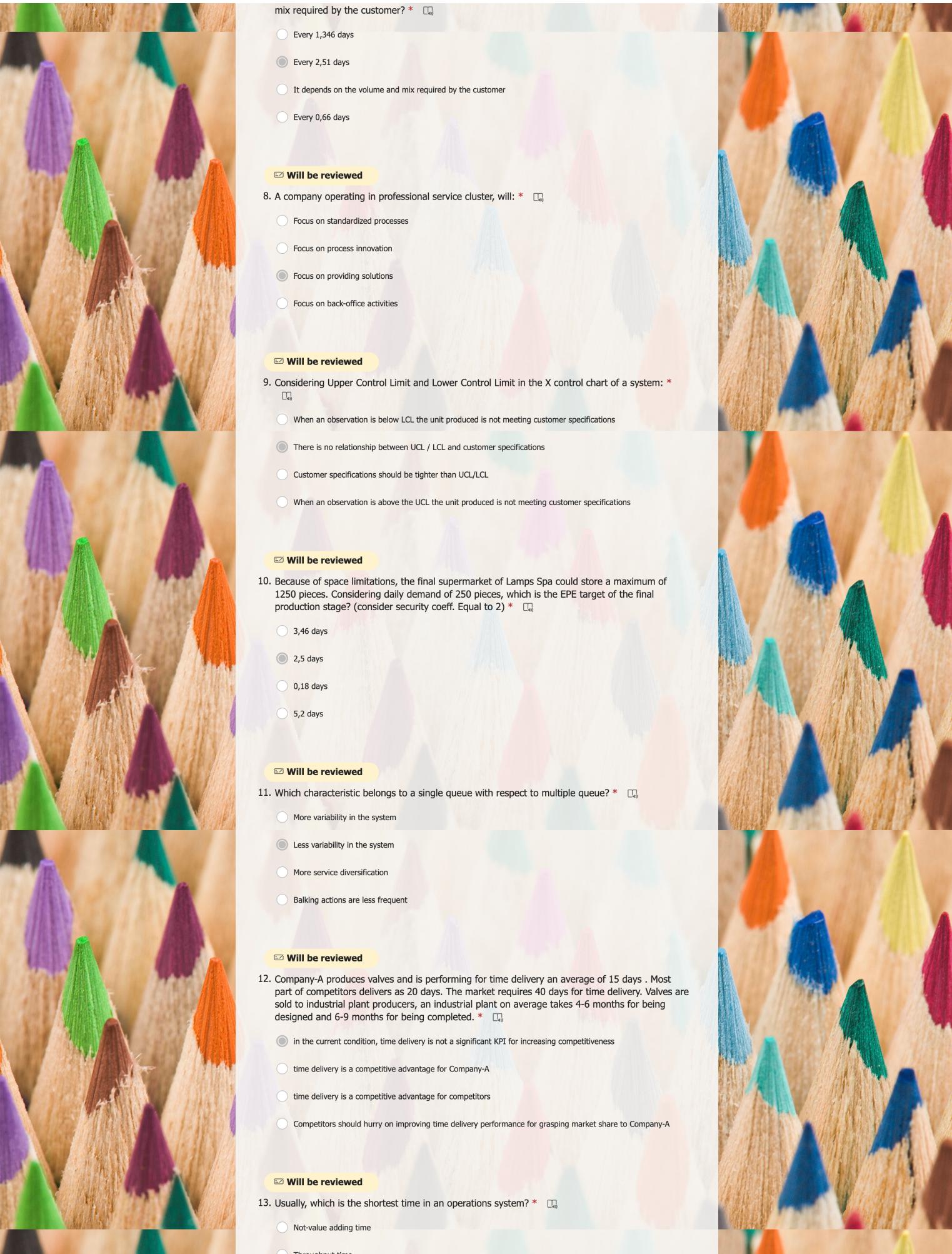
$P = 1 - (20/40)^2 = 0.75$

$P = 1 - (20/40)^5 = 0.96875$

$P = 1 - (20/40)^3 = 0.875$

✉ Will be reviewed

7. Sailor Spa production process is made by 5 stages with the following EPEs:
 $EPE(S1) = 2,14 \text{ days}$; $EPE(S2) = 0$; $EPE(S3) = 2,51 \text{ days}$; $EPE(S4) = 1,42 \text{ days}$, $EPE(S5) = 0,66 \text{ days}$.
Which is the frequency according to which Sailor Spa is able to produce the whole volume and



mix required by the customer? *

- Every 1,346 days
- Every 2,51 days
- It depends on the volume and mix required by the customer
- Every 0,66 days

 **Will be reviewed**

8. A company operating in professional service cluster, will: *

- Focus on standardized processes
- Focus on process innovation
- Focus on providing solutions
- Focus on back-office activities

 **Will be reviewed**

9. Considering Upper Control Limit and Lower Control Limit in the X control chart of a system: *

- When an observation is below LCL the unit produced is not meeting customer specifications
- There is no relationship between UCL / LCL and customer specifications
- Customer specifications should be tighter than UCL/LCL
- When an observation is above the UCL the unit produced is not meeting customer specifications

 **Will be reviewed**

10. Because of space limitations, the final supermarket of Lamps Spa could store a maximum of 1250 pieces. Considering daily demand of 250 pieces, which is the EPE target of the final production stage? (consider security coeff. Equal to 2) *

- 3,46 days
- 2,5 days
- 0,18 days
- 5,2 days

 **Will be reviewed**

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

- More variability in the system
- Less variability in the system
- More service diversification
- Balking actions are less frequent

 **Will be reviewed**

12. Company-A produces valves and is performing for time delivery an average of 15 days . Most part of competitors delivers as 20 days. The market requires 40 days for time delivery. Valves are sold to industrial plant producers, an industrial plant on average takes 4-6 months for being designed and 6-9 months for being completed. *

- in the current condition, time delivery is not a significant KPI for increasing competitiveness
- time delivery is a competitive advantage for Company-A
- time delivery is a competitive advantage for competitors
- Competitors should hurry on improving time delivery performance for grasping market share to Company-A

 **Will be reviewed**

13. Usually, which is the shortest time in an operations system? *

- Non-value adding time
- Throughput time



Lead Time

Value adding time

Will be reviewed

14. Which of the following sentences is right: *

- A single queue could be modelled as 4 M/M/1
- None of the above of the above
- A multiple queue could be modelled as 5 M/M/1
- A multiple queue can be modelled as M/M/3

Will be reviewed

15. In a single queueing system, which are the benefits comparing it with multiple queueing system? *

- Reduce the anxiety of customers waiting in line
- Higher specialization
- Increasing customization
- Shortening of lead-time

Will be reviewed

16. Calculate the revenues of an event knowing that it can hold up to 500 participants, Full price=300€, Discounted price=150€, PL=200, and 50% of full price ticket holders will donate 40 € for charity *

- $R=300X+(500-200)*150+0.5*40*X$
- $R=300X+(500-200)*150+0.5*40*200$
- $R=300X+(500-200)*150$
- $R=300X+(500-200)*150+0.5*40$

Will be reviewed

17. For a local flight in Italy one can buy a 14-day advance-purchase fare for only 49 euros. The regular full fare price for local flight is 60 euros. On average, all type of passengers buy directly on the flight a brioche that costs 3 euros and coffee for 2 euros. Choose the correct answer *

- $Co=49+2+3=54$
- $Co=49$
- $Co=49-2+3=50$
- $Co=49-2-3=44$

Will be reviewed

18. Consider a company that works in machine-tools industry. For that company, price is qualifier, quality of specifics is order winner and delivery speed is qualifier. Which is the most appropriate lever? *

- Improving quality of the food
- Investing in extra-capacity
- Increasing budget for raw material purchasing
- Centralization of back-office activities

Will be reviewed

19. For a local event one can buy 20-day advance ticket for only 50 €. The regular full fare price for the ticket is 70€. The participants of the event will be offered a buffet for 20€ per person, the dinner expenses are provided by a local sponsor. *

- $Cu=70-50+20=40$
- $Cu=70-50=20$





Cu=70-50-20=0

Cu=70

Will be reviewed

20. In a grocery store, 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 3 cashiers following a FIFO approach in one single line. What is the queue configuration? *

MM3

3MM3

3M/M/1

MM4

Will be reviewed

21. Market segmentation is useful to *

- Identify homogeneous customers needs
 Increase the availability of machines
 Reduce the Cycle Time
 Introduce a reservation system

Will be reviewed

22. Which of these sets of characteristics represent the ideals for yield management? *

- Variable capacity, perishable inventory, low capacity change cost and product booked in advance
 Fixed capacity, perishable inventory, low capacity change cost and ability to segment markets
 Fixed capacity, perishable inventory, high capacity change cost, ability to segment markets, fluctuating demand and product booked or sold in advance
 Perishable inventory, high capacity change cost, product sold after its use and fixed demand

Will be reviewed

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

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

Will be reviewed

24. In the HQ case, which are the most significant performance to compete in the new market? *

- Quality (conformity) and time (delivery reliability)
 Time (speed), flexibility (product and plan), quality of design
 Time (speed), price and flexibility (variety)
 Price and quality of design

Will be reviewed

25. 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 materials? (consider security coeff. Equal to 2) *

- Twice per working week (5 days)
 Every 5 days
 Every 3,33 days
 Twice per day



Will be reviewed

26. Which technology does not represent a lean technological facilitator? *

- e-KANBAN
- Sensors, Big Data, Machine learning
- Human-Machine Interface
- Additive manufacturing

Will be reviewed

27. Imagine that you have a production process where there are two parallel flows. What will you consider for drawing your timeline? *

- I will consider for my timeline the longest CT for the two parallel stages while for the downstream supermarkets, the one with higher number of stocked piece.
- I will compute the overall time length of both paths. I will consider the longest path for my timeline (in terms of stage, as well as of upstream and downstream supermarkets).
- I will consider for my timeline the stage with the highest EPE.
- I will consider for my timeline the shortest CT for the two parallel stages while for the downstream supermarkets, the one with lower number of stocked piece.

Will be reviewed

28. Sampling the output of a system and considering the average value of a selected performance:

- *
- The variance of the averages of the samples is the same as the variance of the population
 - The variance of the averages of the samples is bigger than the variance of the population
 - The variance of the averages of the samples is smaller or larger depending of the type of distribution of the population
 - The variance of the averages of the samples is smaller than the variance of the population

Will be reviewed

29. The M&M company, which works on 3 shifts of 6 hours/shift each, has a cell in which are now employed 3 operators. The operators perform manual tasks in order to produce product A, which daily demand is 100. In the cell, three main activities are performed which take respectively 5 min, 10 min and 3 min. Determine whether the number of operators can be reduced in order to save a resource for other value-added activities *

- The cell needs 2 operators; thus 1 operator can be employed in another department
- 3 operators are necessary to cope with the 3 different activities
- The cell requires only 1 operator
- The cell needs 3 operators to address the overall work-content

Will be reviewed

30. Choose the correct answer for M/M/C system *

- When system utilization increases for the same number of servers, the number of people waiting in queue decreases
- When system utilization increases for the same number of servers, the number of people waiting in queue increases
- When system utilization decreases for the same number of servers, the number of people waiting in queue increases
- When system utilization increases for the same number of servers, the number of people waiting in queue remains the same

Will be reviewed

31. Considering overbooking practice in an hotel: the costs of image and of the penalty for not having an available room for a customer that booked the room *

- Increase the cost of underestimation overbooking
- Decrease the cost of overestimation overbooking
- Increase the cost of overestimation overbooking



Decrease the cost of underestimation overbooking

Will be reviewed

32. When introducing a priority of one customer typology over another, the throughput time of a system * 

- increases only if non pre-emptive priority
- increases regardless of priority type
- remains unchanged
- increases only if pre-emptive priority

Will be reviewed

33. Offblack produces 40 standard shirts and 5 special shirts per day. You want to compute EPE for standard products. Which of the following formula is correct? * 

- $EPE\ STD \geq Tset\ STD / (Ta - Tp\ SPE - Tset\ SPE - Tp\ STD)$
- $EPE\ STD \geq Tset / (Ta - Tp)$
- $EPE\ STD \geq Tset / (Ta - Tp\ SPE - Tset\ SPE)$
- $EPE\ STD \geq Tset\ STD / (Ta - Tp\ STD)$

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