ECO Sample Test

1. What is the time for the production of a lot of Part A when the information of this calculation are as the follows ?

   ✷ Work center information.

<table>
<thead>
<tr>
<th>Work center</th>
<th>Part A</th>
<th>Part B</th>
</tr>
</thead>
<tbody>
<tr>
<td>W/C 100</td>
<td>20 unit/hr</td>
<td>20 unit/hr</td>
</tr>
<tr>
<td>W/C 200</td>
<td>10 unit/hr</td>
<td></td>
</tr>
<tr>
<td>W/C 300</td>
<td></td>
<td>5 unit/hr</td>
</tr>
</tbody>
</table>

   - W/C100 change time = 5 minutes.
   - W/C200, W/C300 : a dedicated machinery.
   - Lot size = 5.
   - Queue time of each work center does not need to consider.

   A. 50 minutes.       B. 60 minutes.       C. 45 minutes.       D. 15 minutes.

2. Using the routing information of order A, when is appropriate for the working start date of operation 20 ?

<table>
<thead>
<tr>
<th>Operation</th>
<th>Setup time</th>
<th>Run time/piece</th>
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</thead>
<tbody>
<tr>
<td>10</td>
<td>3</td>
<td>0.05</td>
</tr>
<tr>
<td>20</td>
<td>2</td>
<td>0.2</td>
</tr>
<tr>
<td>30</td>
<td>3</td>
<td>0.5</td>
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<tr>
<td>40</td>
<td>2</td>
<td>0.4</td>
</tr>
<tr>
<td>50</td>
<td>1</td>
<td>0.6</td>
</tr>
</tbody>
</table>

   - Interoperation time = 4 hours.
   - Working hours per day = 8 hours.
   - Lot size = 20 units.
   - Order due date = 195.

   A. 186       B. 187       C. 188       D. 189
3. Calculate the productivity of work center using the below information:

<table>
<thead>
<tr>
<th>Part</th>
<th>Standard Hours</th>
<th>Charged Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>200</td>
<td>250</td>
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<tr>
<td>B</td>
<td>160</td>
<td>150</td>
</tr>
<tr>
<td>C</td>
<td>40</td>
<td>50</td>
</tr>
</tbody>
</table>

- Total Clock Hours : 480 hours.  - Planned Labor Hours : 420 hours.

A. \(\frac{450}{480}\)  
B. \(\frac{400}{450}\)  
C. \(\frac{400}{480}\)  
D. \(\frac{480}{480}\)

4. Calculate overtime per day per worker:
   - Available hours per week : 40 hours.
   - Utilization : 90%.
   - Efficiency : 80%.
   - Lot size : 1000 units.
   - Cycle time per work = 15 minutes.
   - No. of workers = 4.
   - Required production time = 2 weeks.

A. 10 minutes  
B. 20 minutes  
C. 30 minutes  
D. 40 minutes

5. A work center, which has two machines, are given 400 hours for a specific customer order at the last month. In the operation process, the following information are collected.
   - Preventive maintenance = 60 Hrs.
   - Absenteeism = 25 Hrs.
   - Late tools = 15 Hrs.
   - Active standard hours = 270 Hrs.
   - Hours of work per week = 40 Hours.

When jobs and each priority of the next period are as the follows, which jobs are possible to complete?

1. Job M : 17 Hrs.  
2. Job N : 9 Hrs.  
3. Job O : 14 Hrs.  
4. Job P : 14 Hrs.  
5. Job Q : 21 Hrs.

A. M, N  
B. M, N, O  
C. M, N, O, P  
D. M, N, O, P, Q
6. In the above workcenter, what is the efficiency of the next week?
   A. 72%         B. 75%        C. 80%          D. 90%

7. A company has 500 units of week demand and 8 days of transit lead time. In case of the product price for this demand is $25 and carrying cost rate is 20%, how much cost reduction is expected when decreasing transit lead time from 8 days to 5 days?
   A. $900         B. $1500        C. $7500         D. $12500

8. When using the below information, calculate the rated capacity if increasing 10% of the productivity.
   - No. of machines : 10.
   - No of shifts : 2.
   - Workers per shift : 1 shift - 8 workers. 2 shift - 5 workers.
   - Utilization = 80%.
   - Efficiency = 90%.
   - Working hours per week = 40 hours.
   A. 288         B. 317        C. 374         D. 412

9. Which of the following technique can contribute to intensify visual control for a specific workcenter?
   A. Flexible workforce.                 B. Workplace organization.

10. Zone location system have some advantages such as:
    I. Reduction of material handling.
    II. Proximity for related parts.
    III. Travel cost effectiveness.
    IV. Utilization of branch warehouse.
    A. I, II          B. II        C. I, II, III     D. I, II, III, IV
11. Which of the following is likely to most appropriate practice for WIP inventory accuracy?
   A. Increasing MRP system frequency.   B. Inventory cycle counting.
   C. Implementation of data redundancy system for only WIP.  D. Daily reporting.

12. If critical ratio is 0.5, controller should:
   A. De-expediting.                B. Setting slack time.
   C. Expediting.                   D. Rescheduling work order due-date.

13. PLUSSTAR®, power supply production company, has two product lines. One is made to contribute part fabrication and another is used to assemble parts, but now the company have some problems for second line - excess inventory and part shortage. Which of the following measures is the BEST choice for improving this line?
   A. Delivery speed.                    B. Piece fill rate.
   C. Revenue fill rate.                  D. Delivery to schedule.

14. If gateway work center is overloaded, what should be done for next operation by controller?

15. In general, statistical process control (SPC) is most useful to control quality. Which of the following environment is likely to the most challenge of this technique?
   A. Intermittent.                           B. Repetitive flow.
   C. Build-to-forecasting.                    D. Continuous flow.

16. ________ is used to effectively control inventory transaction costs when organizing demand based focused factory.
   A. Backflushing system.       B. Pre-deducted system.
   C. Cycle counting system.    D. Kanban.
17. If efficiency of a workcenter have just improved from 80% to 90% and other parameter affecting workcenter capacity are the same, what is input having same queue? (assuming the prior input is 680 units.)
   A. 680 units.          B. 725 units.           C. 765 units.         D. 785 units.

18. EDI or electronics transaction can eliminate:

19. Among problem solving techniques, "Priority" is the closest relationship with
   A. Brainstorming.        B. Control Chart.         C. PDPC.           D. Pareto Chart.

20. Setup cost is set by:

21. All of the following affect on rescheduling shop order EXCEPT

22. Which of the following represent the process in control?
   I. Pareto chart.
   II. X chart.
   III. Histogram.
   IV. P chart.
   A. I, II             B. II, III            C. II, IV             D. IV

23. All of the following result from long-term commitment between supplier and customer EXCEPT
   A. Single source.       B. Multiple source.       C. Point of use.      D. Empty bin.
24. The process of work are sequential and processing time are 10 seconds, 30 seconds, 20 seconds, 40 seconds, 30 seconds, 20 seconds respectively. When the required production rate is one unit per minute, How much workers are needed?
   A. 1 person.     B. 2 person.     C. 3 person.     D. 6 person.

25. When a company select backflusing as inventory control system, a company have some problems concerning to
   A. Inventory accuracy.        B. Staging and kitting.
   C. Incoming inspection.       D. Transaction cost.

26. What is scalon plan?

27. All of the following concepts and techniques are included by Taguchi method EXCEPT:

28. Among product costing techniques, which of the following require outputs during predetermined period instead of investigating each activity of production?
   A. Job order costing.        B. Process costing.
   C. Activity-based costing.   D. Throughput costing.

29. Which of the following is (are) used to determine job priority?
   Ⅰ.  Kanban.
   Ⅱ.  Input/output control.
   Ⅲ.  Staging.
   Ⅳ.  Queue time.
   A. Ⅰ   B. Ⅱ   C. Ⅰ, Ⅲ    D. Ⅱ, Ⅳ
30. Velocity costing:
   A. Use to lead time for allocating overhead costs.  
   B. Is the same as variable costing. 
   C. Use to labor hour for allocating overhead costs.  
   D. Is avoidable cost.

31. What is the product lead time?
   - Actual input: 100/week. 
   - Actual output: 100/week. 
   - Current WIP: 160 units. 
   A. 0.63 week.  
   B. 1 week.  
   C. 1.6 week.  
   D. 2.6 week.

32. Which of the following should be increased for reducing run time in the labor intensive workcenter?
   A. Efficiency.  
   B. Utilization.  
   C. Capacity.  
   D. Throughput.

33. All of the following are used for determining no. of kanbans EXCEPT
   A. Daily use.  
   B. Lead time.  
   C. Container size.  
   D. Bill of materials.

34. What is the throughput time for producing 100 units in the below workcenter?

<table>
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<th>Operation</th>
<th>Time</th>
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</thead>
<tbody>
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<td>5 min.</td>
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<tr>
<td>Op 200</td>
<td>6 min.</td>
</tr>
<tr>
<td>Op 300</td>
<td>3 min.</td>
</tr>
<tr>
<td>Op 400</td>
<td>4 min.</td>
</tr>
</tbody>
</table>

   A. 1800 minutes.  
   B. 600 minutes.  
   C. 400 minutes.  
   D. 100 minutes.

35. Which of the following is NOT one of operation time?
   A. Run time.  
   B. Setup time.  
   C. Queue time.  
   D. Teardown time.
36. When overhead costs are calculated as 200% of setup cost, calculate overhead cost using the following information.
   - Setup cost: $10 per 1.5 setup time.
   - Setup time: 4.5 hours.
   - Efficiency: 33%.
   

37. Which of the following is (are) actual input source(s) in input/output control?
   I. Planned order.
   II. Released order.
   III. Master production schedule.
   IV. Dispatching.
   
   A. I          B. I, II, IV       C. II          D. II, III

38. All of the following practices are appropriate for increasing capacity EXCEPT:

39. When performing cost variance analysis, which of the following affect on differences between planned cost and actual cost?
   I. Queue.
   II. Staging.
   III. Efficiency.
   IV. Scrap.
   
   A. IV         B. I, II, IV     C. II, III      D. III, IV

40. In a firm using customer ordering system, customer orders are released once a week and average throughput lead time are 2.5 weeks. What is the average delivery lead time in this firm?
   A. 2.5 week.   B. 3 week.       C. 3.5 week.     D. Unknown.
41. Which of the following is closely related to overlapping?
   A. Capacity requirement planning.       B. Input/output control.
   C. Priority control.                    D. Preventive maintenance.

42. When increasing tolerance limits from ± 0.2 to ± 0.5, ultimately we can expect this results in:
   A. Defectives are reduced, while process capability is increased.
   B. Defectives are reduced, while process capability is decreased.
   C. Defectives are enlarged, while process capability is increased.
   D. Defectives are enlarged, while process capability is decreased.

43. Which of the following is true about staging EXCEPT
   A. Staging is pulling in advance from inventory before the material is required.
   B. Staging can be effectively used in JIT system to reduce lead time.
   C. Staging disrupts the production flow.
   D. Staging causes detrimental problems in inventory management.

44. Which of the following can be NOT accepted as the concept of backflushing?
   A. Facilitates the reduction of counting points.
   B. Deduct the parent items when the components are produced.
   C. Will be executed when assemblies are produced.
   D. Use the bill of material of assembly item.

45. Which of the following are TRUE about random location?
   I. Random location is feasible when a computer system is employed.
   II. Lot, or batch, Identity can be more easily maintained.
   III. Picking orders can be scheduled on FIFO basis.
   A. I  B. I, II  C. I, III  D. I, II, III
46. The greatest advantage of forward integration is likely to:
   A. Investigate customer requirements more precisely.
   B. Focus on communication among suppliers.
   C. Decrease defectives of buying parts.
   D. Be more cost effective because it can decrease the frequency of use for POS data.

47. Which of the following production systems have the closest relationship with synchronous production?
   I. Just-in-Time.
   II. Pull system.
   III. Push system.
   IV. Project production.
   A. I
   B. I, II
   C. I, II, III
   D. I, II, III, IV

48. Which of the following is TRUE about calculating move time of MLT?
   A. It uses average time among workcenters.
   B. It's calculation is engineering responsibility.
   C. It is based on each workcenter queue time.
   D. It is dependent on the distance between workcenters.

49. When a process efficiency is increased, we can
   A. Increase production output.
   B. Decrease production output.
   C. Increase production input.
   D. Decrease production input.

50. Due date information of shop order are storage in which of the following base?
   A. Job order file.
   B. Work ticket.
   C. Item master file.
   D. Routing file.
51. Which of the following actions is MOST likely to produce a high degree of sustained inventory data integrity?
   A. Increasing frequency of cycle counts.           B. Changing cycle counting methods periodically.
   C. Making periodic physical inventories.            D. Resolving problems exposed by cycle counting.

52. Which of the following BEST describes the results of total quality control?
   A. Statistical tests of production identify sources of defects.
   B. The number of inspection stations is decreased in the production process.
   C. The product is made right the first time.
   D. The cost of scrap and rework is below budget.

53. Employee involvement is the concept of using
   A. Managerial employees to perform nonmanagerial tasks whenever they are idle.
   B. Employees to perform jobs outside of their assigned duties without prior consent.
   C. Employees’ creative energy and intelligence in certain decision-making processes.
   D. All of the above.

54. In Plant X, flow of purchased parts is from receipt at dock to receiving/inspection to receipt at stores. In the MRP system, inventory on hand is increased when material is received at stores. Which of the following are true about this situation?
   I. A supplier delivery performance measurement should be based on actual receipts at dock versus schedule.
   II. Purchase orders should be closed when all parts are received at stores.
   III. A resource constraint could cause parts to be received at the dock but not into the stores on schedule.
   A. I and II only       B. I and III only       C. II and III only        D. I, II, and III

55. Reducing queues achieves all of the following EXCEPT
   A. Shortened production lead times.           B. Quicker feedback about quality problems.
   C. Improved process capability.            D. Reduced inventory investment.
56. High-quality production is BEST achieved by doing which of the following?
   A. Reporting production quality information online.
   B. Establishing employee ownership of quality.
   C. Increasing the number of quality control inspection personnel.
   D. Using process control charts.

57. The main objective of line balancing in an assembly operation is to
   A. Provide maximum mobility of operators between assembly lines.
   B. Minimize the total number of parts required for each assembly line.
   C. Develop work standards for cost-estimating purposes.
   D. Distribute the work to maximize line output.

58. Inventory control can be improved by adopting which of the following storeroom practices?
   I. Calculating EOQs to determine quantities to issue
   II. Initiating a cycle-counting system
   III. Making the storeroom off-limits to all except storeroom personnel
   IV. Maintaining parallel record systems to cross-check balances
   A. I and II only       B. II and III only         C. III and IV only        D. I, III, and IV only

59. The most significant factor affecting the difference between planned lead time and actual lead time for
    a specific order or batch in a shop is
    A. Priority         B. Capacity        C. Queues         D. Component availability

60. Network analysis (PERT/CPM) is a scheduling technique used primarily in
    A. Job shops where many alternate routings are possible.
    B. Continuous process companies using flow control.
    C. Companies working on projects that have fairly well-defined beginnings and endings.
    D. Companies using computer-aided manufacturing (CAM) applications.
61. An operator falls behind the flow and a small bottleneck occurs at a workstation. The operator switches on the signal light, and the two operators at the adjacent workstation immediately move in to help. Soon, the bottleneck is relieved, and the two return to their workstations. The procedure described above includes examples of all of the following EXCEPT

62. A focused factory is usually characterized by which two of the following?
   I. Restricted product variety
   II. Decreased attention to detail
   III. Layout by function
   IV. Logical flow patterns
   A. I and III        B. I and IV         C. II and III         D. II and IV

63. When allocated on the basis of historical direct labor hours, overhead will be properly absorbed if which of the following is TRUE ?
   A. Total volume increases.                 B. Total volume decreases.
   C. Total volume remains unchanged.        D. Fixed costs decrease.

64. Pareto analysis is included in training so that employees may use it to identify which of the following?
   A. The most frequently occurring defects.          B. Out-of-control operations.
   C. The customer base for marketing.              D. The volume of work through the plant.

65. Under the group technology concept, which of the following is TRUE ?
   A. Like machines should be grouped in clusters.
   B. Machines should be grouped to produce parts of similar form.
   C. Tape controlled machines are required.
   D. Manufacturing departments should be laid out according to function.
66. When expediting purchased parts that are needed from the supplier before the original due date, a buyer should first try to do which of the following?
   A. Buy all the parts from an alternate source.
   B. Offer to de-expedite another part that is needed later than the original due date.
   C. Offer to pay a premium.
   D. Increase safety lead time by one week.

67. Which of the following systems would be most appropriate for managing an inventory of solenoids purchased by an appliance manufacturer for use in the assembly of several models of an automatic dishwasher?
   A. Two-bin replenishment system.
   B. MRP system.
   C. Fixed order quantity, EOQ, reorder point system.
   D. Fixed interval, periodic ordering system.

68. The value of work-in-process inventory is LEAST affected by which of the following?
   A. Process time.
   B. Lot sizing.
   C. Queue time.
   D. MRP processing frequency.

69. In environments using backflush inventory relief, perpetual on-hand inventory counts are relieved when
   A. Planned orders for the parent items are created by MRP.
   B. A work order for the parent item is generated.
   C. Production against the parent item is reported.
   D. The parent item is shipped to a customer.

70. U-shaped cells that group dissimilar machines to perform various operations on a part result in reduction of all of the following EXCEPT
   A. Travel distances.
   B. Machine downtime.
   C. In-process inventory.
   D. Lead times.
71. Customer-oriented manufacturing performance measures include all of the following EXCEPT
   A. Service parts availability.             B. Cost variances.

72. Kanban can be BEST described by which of the following ?
   A. Just-in-time vendor delivery system
   B. A Japanese form of statistical process control
   C. A pull system used for signaling the previous operation that parts are needed
   D. A work team improvement process

73. Standardized work practices include which two of the following ?
   I. Flexible flow paths
   II. Common sequencing of operations
   III. Alternate operations
   IV. Reproducible conditions

   A. I and III             B. I and IV            C. II and III            D. II and IV

74. In the implementation of Just-in-Time, which of the following is the MOST significant change for the accounting function ?
   A. Cellular processes no longer report every operation to accounting.
   B. Budgeted scrap and rework costs that create variances are reduced.
   C. Physical inventory of work-in-process inventory is more time-consuming.
   D. Costs of incentive programs increase.

75. Under full absorption costing, overhead costs would be handled by which of the following methods ?
   A. They would be subtracted from the variable margin for a net profit.
   B. They would not be allocated to individual products.
   C. They would be allocated to each product based on the overhead burden rate.
   D. None of the above.
**Solution:**

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**ECO:** Execution & Control of Operation.