

Roll No: -----



## UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, May 2018

<b>Program:</b>	<b>Bachelor of Business Administration (Logistics)</b>	<b>Semester</b>	<b>: II</b>
<b>Subject (Course):</b>	<b>Operations Management</b>	<b>Max. Marks</b>	<b>: 100</b>
<b>Course Code:</b>	<b>LSCM1002</b>	<b>Duration</b>	<b>: 3 Hrs</b>
<b>No. of page/s:</b>	<b>5</b>		

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### Section A

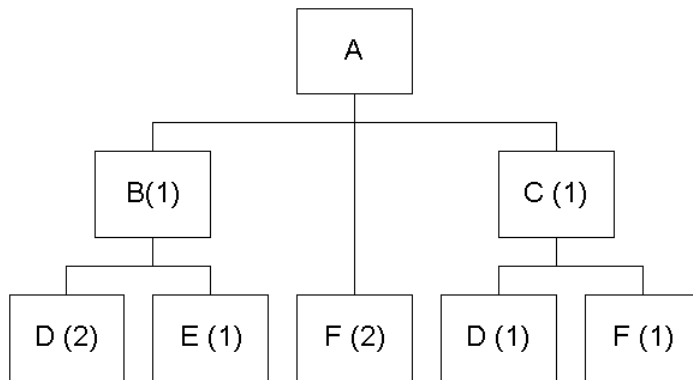
**Q1. Answer all the questions. Select the most appropriate answer. (1 mark X 20=20 marks)**

1. Making sure that the product meets the design specifications during production is referred to as
  - a. quality of design
  - b. process capability
  - c. fitness for use
  - d. quality of conformance
  - e. None of the above
  
2. A control chart that uses the actual number of defects per item to monitor a process is known as a
  - a. p-chart
  - b. c-chart
  - c. R-chart
  - d.  $\bar{x}$ -chart
  - e. None of the above
  
3. \_\_\_\_\_ failure costs include scrap, rework, and downtime.
  - a. External
  - b. Internal
  - c. Process
  - d. System
  - e. None of the above
  
4. Adjusting available capacity by hiring and firing workers to match demand is an example of a(n) \_\_\_\_\_ strategy.
  - a. level production
  - b. chase demand
  - c. mixed production.
  - d. optimal production

- e. None of the above
5. All of the following are inputs to the aggregate production planning process except
- a. demand forecasts.
  - b. financial constraints.
  - c. MPS
  - d. capacity constraints
  - e. None of the above
6. A bill of material lists the
- a. times needed to perform all phases of production
  - b. production schedules for all products
  - c. components, ingredients, and materials required to produce an item
  - d. operations required to produce an item
  - e. components, ingredients, materials, and assembly operations required to produce an item
7. If a sample of parts is measured and the mean of the measurements is outside the control limits, the process is
- a. in control, but not capable of producing within the established control limits
  - b. out of control and the process should be investigated for assignable variation
  - c. within the established control limits with only natural causes of variation
  - d. monitored closely to see if the next sample mean will also fall outside the control limits
  - e. none of the above
8. Forecasts are usually classified by time horizon into three categories
- a. short-range, medium-range, and long-range
  - b. finance/accounting, marketing, and operations
  - c. strategic, tactical, and operational
  - d. exponential smoothing, regression, and time series
  - e. departmental, organizational, and industrial
9. Time series data may exhibit which of the following behaviors?
- a. trend
  - b. random variations
  - c. seasonality
  - d. cycles
  - e. They may exhibit all of the above.
10. Forecasts used for new product planning, capital expenditures, facility location or expansion, and R&D typically utilize a
- a. short-range time horizon
  - b. medium-range time horizon
  - c. long-range time horizon
  - d. naive method, because there is no data history
  - e. all of the above
11. Which scheduling technique should be employed when due dates are important for a job order?

- a. forward scheduling
- b. loading
- c. dispatching
- d. backward scheduling
- e. master scheduling

12. Given the following bill of material



If the demand for product A is 50 units, what will be the gross requirement for component E?

- a. 50
  - b. 100
  - c. 150
  - d. 200
  - e. 300
13. Which of the following would not be an operations function in a fast-food restaurant?
- a. advertising and promotion
  - b. designing the layout of the facility
  - c. maintaining equipment
  - d. making hamburgers and fries
  - e. purchasing ingredients
14. An operations manager is not likely to be involved in
- a. the design of goods and services to satisfy customers' wants and needs
  - b. the quality of goods and services to satisfy customers' wants and needs
  - c. the identification of customers' wants and needs
  - d. work scheduling to meet the due dates promised to customers
  - e. maintenance schedules
15. Which of the following statements is **true**?
- a. Almost all services and almost all goods are a mixture of a service and a tangible product.
  - b. A pure good has no tangible product component.
  - c. A pure service has only a tangible product component.

- d. There is no such thing as a pure good.
  - e. None of the above is a true statement.
16. Which layout type assumes an adequate volume for high equipment utilization?
- a. product-oriented layout
  - b. process-oriented layout
  - c. fixed-position layout
  - d. retail layout
  - e. warehouse layout
17. A good layout requires determining
- a. material handling requirements
  - b. capacity and space requirements
  - c. environment and aesthetics
  - d. cost of moving between various work areas
  - e. all of the above
18. The type of layout which features departments or other functional groupings in which similar activities are performed is
- a. process-oriented
  - b. product-oriented
  - c. fixed-position
  - d. mass production
  - e. unit production
19. Cycle time is computed as
- a. desired output divided by the daily operating time
  - b. daily operating time divided by the product of desired output and the sum of job times
  - c. the product of desired output and the sum of job times divided by daily operating time
  - d. daily operating time divided by the scheduled output
  - e. 1.00 minus station time
20. The fixed-position layout would be most appropriate in which of the following settings?
- a. a fast-food restaurant
  - b. a doctor's office
  - c. a casual dining restaurant
  - d. a cruise ship assembly facility
  - e. none of the above

### **Section-B**

**Answer any four questions**

**(5 marks X 4 = 20 marks)**

**Q2.** Differentiate between forward and backward scheduling.

**Q3.** Explain weighted factor rating method to select facility location.

**Q4.** The number of motorbikes sold by a Hero Dealer for past 5 months is as follows:

Month	Patient Arrivals
1	182
2	195
3	188
4	175
5	190
6	

Compute a five-month moving average forecast for sale of number of motorbikes in month 6. What is the forecast error for month 6 if actual number of motorbikes sold in month 6 are 198.

**Q5.** What is quality circle. Briefly describe process of employing quality circle for quality management.

**Q6.** Explain ABC analysis of inventory control.

### Section C

**Answer any two questions**

**(15 marks X 2 = 30 marks)**

**Q7.** Describe process layout and product layout. Compare these two types of plant layouts giving their relative advantages and disadvantages.

**Q8.** What is Master Production Schedule (MPS). What are its functions?

**Q9.** Discuss different strategies used for aggregate planning.

### Section D

**(10 marks X 3= 30 marks)**

**Q10.** Last year, the general manager of the service department at East Woods Ford Motor Company instituted a customer opinion program to find out how to improve service. One week after service on a vehicle is performed, an assistant would call the customer to find out whether the work had been done satisfactorily and how service could be improved. After one year of gathering data, the assistant discovered that the complaints could be grouped into the following five categories

Complaint	Frequency
Unfriendly atmosphere	5
Long wait for service	17
Price too high	20
Incorrect bill	8
Needed to return to correct problem	50
<b>Total</b>	100

- Draw a Pareto Chart to identify “vital few” service problems.
- Draw a Cause-and-Effect diagram for the service provided at East Woods Ford Motor Company to identify causes of customer dissatisfaction. Make suitable assumptions if required.
- East Woods Ford Motor Company has appointed you as Manager (Quality Assurance and Control). You have been given responsibility to implement Total Quality Management (TQM) system at the company. What are the basic principles of Total Quality Management (TQM) which you will consider to implement the same.

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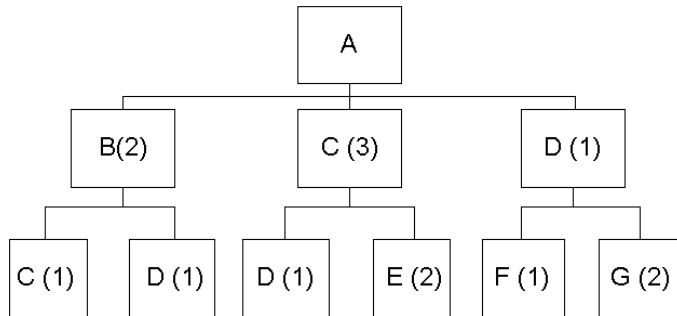
### Section A

**Q1. Answer all the questions. Select the most appropriate answer. (1 mark X 20=20 marks)**

- Which of the following control charts is used to monitor the proportion of defective items within a sample?
  - x bar chart
  - R chart
  - c chart
  - p chart
  - None of the above
- The degree to which a product meets pre-established standards is known as
  - conformance
  - performance
  - reliability
  - none of the above
  - None of the above
- The process of breaking an aggregate plan into more detailed plans is referred to as
  - collaborative planning.
  - hierarchical planning.
  - disaggregation.
  - rough-cut planning
  - None of the above
- The \_\_\_\_\_ is the MRP input detailing which end items are to be produced, when they are needed, and in what quantities.
  - master production schedule
  - gross requirements
  - inventory records
  - assembly time chart
  - bill of material

5. "Kaizen" is a Japanese term meaning
  - a. a foolproof mechanism
  - b. just-in-time (JIT)
  - c. a fishbone diagram
  - d. setting standards
  - e. continuous improvement
  
6. When a sample measurement falls inside the control limits, it means that
  - a. each unit manufactured is good enough to sell
  - b. the process limits cannot be determined statistically
  - c. the process output exceeds the requirements
  - d. if there is no other pattern in the samples, the process is in control
  - e. the process output does not fulfill the requirements
  
7. Dependence on an external source of supply is found in which of the following aggregate planning strategies?
  - a. varying production rates through overtime or idle time
  - b. subcontracting
  - c. using part-time workers
  - d. back ordering during high demand periods
  - e. hiring and laying off
  
8. The two general approaches to forecasting are
  - a. qualitative and quantitative
  - b. mathematical and statistical
  - c. judgmental and qualitative
  - d. historical and associative
  - e. judgmental and associative
  
9. Gradual, long-term movement in time series data is called
  - a. seasonal variation
  - b. cycles
  - c. trends
  - d. exponential variation
  - e. random variation
  
10. In time series, which of the following cannot be predicted?
  - a. large increases in demand
  - b. technological trends
  - c. seasonal fluctuations
  - d. random fluctuations
  - e. large decreases in demand

11. Given the following bill of material



If the demand for product A is 50 units, what will be the gross requirement for component E?

- a. 4
  - b. 100
  - c. 200
  - d. 250
  - e. 300
12. All of the following decisions fall within the scope of operations management **except** for
- a. financial analysis
  - b. design of goods and processes
  - c. location of facilities
  - d. managing quality
  - e. All of the above fall within the scope of operations management.
13. Which is **not** true regarding differences between goods and services?
- a. Services are generally produced and consumed simultaneously; tangible goods are not.
  - b. Services tend to be more knowledge-based than products.
  - c. Services tend to have a more inconsistent product definition than goods.
  - d. Goods tend to have higher customer interaction than services.
  - e. None of the above is true.
14. Which of the following is **not** a typical service attribute?
- a. intangible product
  - b. easy to store
  - c. customer interaction is high
  - d. simultaneous production and consumption
  - e. difficult to resell
15. Which of the following is **true** for process layouts, but **false** for product-oriented layouts?



- a. low in-process inventories
  - b. flexibility in equipment and labor assignments
  - c. low variety of products
  - d. high volume of output
  - e. often solved by assembly line balancing
16. Evaluating location alternatives by comparing their composite (weighted-average) scores involves
- a. factor rating analysis
  - b. cost-volume analysis
  - c. transportation model analysis
  - d. linear regression analysis
  - e. crossover analysis
17. W. Edwards Deming believed that primary responsibility for quality improvement rested with
- a. the firm's employees only
  - b. the firm's management only
  - c. research engineers and consulting statisticians only
  - d. both the employees and management of the firm
  - e. None of the above
18. Dependent demand and independent demand items differ in that
- a. for any product, all components are dependent-demand items
  - b. the need for independent-demand items is forecast
  - c. the need for dependent-demand items is calculated
  - d. All of the above are true.
  - e. None of the above is true.
19. A jewelry store is more likely than a jewelry manufacturer to consider \_\_\_\_\_ in making a location decision.
- a. transportation costs
  - b. cost of raw materials
  - c. parking and access
  - d. climate
  - e. taxes
20. The type of layout which features departments or other functional groupings in which similar activities are performed is
- a. process-oriented
  - b. product-oriented
  - c. fixed-position
  - d. mass production
  - e. unit production

### Section-B

**Attempt any four questions**

**(5 marks X 4 = 20 marks)**

**Q2.** Explain fixed position layout. What are its advantages.

**Q3.** Actual arrival of number of patients at a medical clinic for past 3 months is as follows:

Month	Patient Arrivals
1	400
2	380
3	411
4	

Compute a three-month moving average forecast for the patients in month 4. What is the forecast error for month 4 if actual number of patient's arrival in month 4 is 415.

**Q4.** How does customer perspective of quality differ from produces perspective of quality.

**Q5.** What are the benefits of obtaining ISO9000 by an organization.

**Q6.** Explain three phases of production planning and control.

### Section C

**Answer any two questions**

**(15 marks X 2 = 30 marks)**

**Q7.** Describe different categories and sub-categories of factors that influence plant location decision.

**Q8.** Explain different types of inspection used for quality control.

**Q9.** What is Material Requirements Planning (MRP). What are its main uses.

### Section D

**(10 marks X 3= 30 marks)**

**Q10.** The general manager at the Hard Rock hotel in Bali is worried about the increasing number of guest complaints. On his direction, an operations assistant collected the data from 75 complaint calls to the general manager during the month of October. The analysis of data revealed that the complaints could be grouped into the following five categories

Complaint	Frequency
Room service	54
Check-in delays	12
Inconvenient pool hours	4
Mini bar prices too high	3
Miscellaneous problems	2
<b>Total</b>	<b>75</b>

- a. Draw a Pareto Chart to identify significant quality problems.
- b. Draw a Cause-and-Effect diagram for the service provided at Hard Rock Hotel to identify causes of dissatisfaction. Make suitable assumptions if required.
- c. To improve service quality and increase customer satisfaction, Hard Rock hotel has decided to implement Total Quality Management (TQM) system in the hotel operations. You have been appointed as Manager (Quality Assurance and Control) and given the responsibility to implement TQM. What will be your guiding principles in order to implement Total Quality Management (TQM) at Hard Rock hotel.