

# ESCUELA SUPERIOR POLITECNICA DEL LITORAL

Administración de Operaciones

Examen Final

Term. II, 2019

Yo, ....., al firmar este compromiso, reconozco que el presente examen está diseñado para ser resuelto de manera individual, que puedo usar una calculadora ordinaria para cálculos aritméticos, un lápiz o esferográfico; que sólo puedo comunicarme con la persona responsable de la recepción del examen; y, cualquier instrumento de comunicación que hubiere traído, debo apagarlo y depositarlo en la parte anterior del aula, junto con algún otro material que se encuentre acompañándolo. No debo además, consultar libros, notas, ni apuntes adicionales a las que se entreguen en esta evaluación. Los temas debo desarrollarlos de manera ordenada. Como estudiante de ESPOL me comprometo a combatir la mediocridad y actuar con honestidad, por eso no copio ni dejo copiar. Firmo al pie del presente compromiso, como constancia de haber leído y aceptar la declaración anterior.

Firma: ..... Nro.Matrícula: .....

Paralelo: .....

Total Points: 13 points. Your grade on this exam is =  $100*(X/13)$

1. You have a company that needs to determine what kind of strategy to use in your sales and operations planning. Your hiring costs are \$60 per person, their firing costs are \$100 per person. It costs you \$1 to hold an item in inventory to the next period and your production costs are \$3 per unit. Each worker can produce 300 units per period. We begin with 200 workers. There are four periods. Period 1 has a demand of 6,000 units; period 2 has a demand of 2,000 units; Period 3 has a demand of 5,000 units; and period 4 has a demand of 3,000 units. Each worker gets a salary of \$2,000 per period. There is no starting inventory. Write a linear programming problem for your company where you are minimizing costs. Be sure to label your decision variables and include all constraints. (5 points)



4. The number of failures in a typical 8-hour day and the average time to regain service are shown below. Which internet provider is best? Show your work for complete credit. (2 points)

Internet	Number of Failures	Time to Regain Service
A	8	2 minutes
B	6	4 minutes
C	2	10 minutes

5. Which of the following is the best definition of the inventory position? (1 point)
- The amount of inventory on hand.
  - The amount of inventory needed to meet demand during the lead time.
  - The amount of on-hand inventory plus the amount of inventory ordered and waiting to arrive.
  - The amount of inventory ordered and waiting to arrive.