

KATHMANDU UNIVERSITY  
End Semester Examination [C]  
April/May 2023

Marks Scored:

Level : B.Sc.  
Year : III

Course : MATH 304  
Semester : I

Exam Roll No.:

Time: 30 mins.

F. M. : 10

Registration No.:

Date : 26 APR 2023

SECTION "A"  
[10Q × 0.5 = 5 marks]

Fill in the blank space (s) by most appropriate word (s) or symbol (s).

- .....method is used to find optimal solution of Assignment problem.
- Objective function of salesman problem is .....
- .....is the time-consuming job or task that is a key subpart of the total project.
- If mean inter-arrival is 6 minutes and service time is distributed with mean 3 minutes then probability that queue size exceeds 3 is .....
- Maximizing assignment problem is solved by converting into minimizing assignment problem by changing profit matrix into .....cost.
- If LP-Problem is  $Maximize Z = 10x_1 + 20x_2$  then 10 indicates .....
- Objective function is parallel to one of the constraints giving the .....solution.
- $Maximize Z = 5x_1 + 7x_2 - 4x_3$  Subject to the constraints  $11x_1 + 12x_2 \leq 9$  and  $3x_1 + 9x_2 + 2x_3 \leq 10$  has dual objective function as .....
- Full form of CPM is .....
- The seed number =37,  $m = 100$ ,  $p = 97$  then first random number is  $r_1 =$  .....

SECTION "B"  
[10Q × 0.5 = 5 marks]

Fill in the blank space (s) by choosing the most appropriate answer from among the given ones.  
**DO NOT TICK** the answers.

- In network analysis critical activity indicates .....
  - The activity can be delayed on earliest start time
  - The activity can be delayed on latest finishing time
  - The activity can be delayed on earliest Finish time
  - The activity can be delayed neither on earliest start time nor latest finishing time nor on earliest Finish time

12. Degeneracy in linear programming occurs when
- basic variables are positive but some of non-basic variables have negative values
  - The basic matrix is singular, it has no inverse
  - Some of basic variables have zero values
  - Some of non-basic variables have zero values
13. If  $m$  rows and  $n$  columns are in the transportation problem then total number of variables are .....
- $m + n$
  - $mn$
  - $2m + n$
  - $m + 2n$
14. In linear programming problem complementary slackness is about the relation between.....
- Number of primal variables and number of dual Constraints
  - Non-degenerate and de-generate
  - Number of primal constraints and number of dual variables
  - Basic primal variables and non-basic dual variables
15. The critical activity has all the floating .....
- Zero
  - Negative
  - Positive
  - Not decisive
16. .... are obtained by enlarging or reducing the size of the item.
- Analytic Models
  - Symbolic Models
  - Iconic Models
  - Numerical Models
17. ....does not relate to queueing model
- Parameters
  - Decision variables
  - Inter arrivals
  - Poisson process
18. If an artificial variable in a final simplex- table of LP- problem has a non- zero value then it indicates that the problem has .....
- Multiple solutions
  - Feasible solution
  - Unbounded solution
  - Infeasible solution
19. Maximization assignment problem is transformed into a minimization problem by
- Adding each entry in a column from the maximization value in that column
  - Subtracting each entry in a column from the maximum value in that column
  - Subtracting each entry in the table from the maximum value in that table
  - Above all at a time
20. In a queueing system one customer enter the line and wait for a while and becomes impatience and decides to leave the queue as well as system is called .....
- Jockey customer
  - Balking customer
  - Reneging customer
  - idle customer