Indian Maritime University

(A Central University, Govt of India)

End Semester Examinations – December 2023

Programme Name: MBA (ITL/PSM)

Semester: Third

Subject Code: PG21E3308/PG22E3308

Subject Name: SUPPLY CHAIN ANALYTICS

Date: 22.12.2023 Max Marks: 60

Duration: 03 Hrs Pass Marks: 30

General Instructions

(i) All Sections (A, B & C) are to be attempted.
(ii) Options, if any, are specified in respective section.

Section A

Ten MCQs/Fill in the Blanks of 01 Mark each – Choose the correct answer as applicable.

1. _____ is usually formulated as a basic COG model and can search for the best locations for a selected number of sites.

a. Single Centres of Gravity
b. Double Centres of Gravity
c. Triple Centres of Gravity
d. Multiple Centres of Gravity

2. _____ is a part of development of facility structures.

a. Transportation
b. Warehousing
c. Sorting
d. Logistics

3. What do you mean by a gravity model?

a. A gravity model is a distance-decay function used to compute the relative attractiveness of centres of supply relative to demand.
b. A gravity model is used to map the density of the Earth's crust.
c. A gravity model is one that relies on network analysis to determine the land prices based on travel times.

d. A gravity model is used to predict the best location for new stores based on the location of competitors.

4. The chief decision areas in supply chain management are

a. location, production, distribution, marketing
b. location, production, scheduling, inventory
c. planning, production, distribution, inventory
d. location, production, distribution, inventory

5. In excel spreadsheet the solving method for travelling salesman problem is

a. simplex
b. CRG Non linear
c. Evolutionary
d Analytical approach

6. Supply chain management of a firm heavily depends on the _____ of a transportation network.

a. design and performance
b. cost
c. advertisement
d. finance

7. With the transportation technique, the initial solution can be generated in any fashion one chooses. The only restriction is that

a. the edge constraints for supply and demand are satisfied.
b. the solution is not degenerate.
c. the solution must be optimal.
d. one must use the northwest-corner method

8. _____ are very useful in the location of facilities as they use a simple and logical approaches but give very effective solutions.

a. Heuristics
b. Geometry rules
c. Marketing principles
d. Demand info

9. What is the correct serial arrangement of operations in production planning and control?

a. Routing-Scheduling-Follow up-Distancing
b. Scheduling-Routing-Dispatching-Follow up
c. Dispatching-Routing-Scheduling-Follow up
d. Routing-Scheduling-Dispatching-Follow up

10. . _____ tries to minimize the maximum demand from any customer to the nearest facility, no matter how insignificant.

a. O-centre problem
b. P-centre problem
c. Q-centre problem
d. R-centre problem

Section B

Five Questions of 02 Marks each

11. What are the advantages of using spreadsheets for decision modelling

12. Explain why knowing how to use excel to setup and solve L P problems may be beneficial to a manager .

13.Compare static versus dynamic location problems

14.Explain multiple attribute utility theory.

15. What is the difference between using an exact optimization technique and a heuristic approach to solve a problem?

Section C

Seven Questions of 08 Marks each of which any 05 questions to be answered.

16. Compare Travelling salesman problem with Vehicle routing problem

17.Describe situations in supply chains of few products where supply chain analytics will be required and will give better solutions .

18.Compare transportation problem with assignment models. Explain with an example how an unbalanced assignment model problem is approached to achieve solution .

19.Name various Discrete location models and indicate briefly where they will be adopted. Which model will be useful for a) franchise locations b) locations for cell phone towers c) locating police and fire services .

20 Explain with an example Greedy drop Heuristic approach in facility location model.

21. Discuss various approaches in vehicle Scheduling methods .

22.a). Discuss the five types of analytic approaches used in decision making process .

b) What steps are involved in the Decision modelling process?

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