[Time: 2 ½ **Hours]** **[Marks:75]**

N.B. 1. Answer **all** the questions.
2. The Marks are assigned on the R.H.S.
3. Draw Illustrations, **diagrams** and **Schedules** wherever necessary.
4. Use of **simple calculator** is allowed.

Q.1 A) Choose Correct Alternative. (Attempt Any 8 questions) **8**

1. Outbound Logistics is also known as _____ Logistics.
   a. Upstream b. Downstream c. Reverse d. Green

2. The 3 C" S in business are Company, Customer and _____.
   a. Cycle b. Competitor c. Carrier d. Creditors

3. _____is a qualitative technique of demand forecasting.
   a. Moving average b. Delphi Method c. Exponential smoothing d. Regression

4. COFC stands for _____ '
   a. Container on Flat car b. Car on Flat Car c. Container on Freight Carrier d. Carrier of Freight car

5. Inter Modal Transportation which combines Air & Road _____.
   a. Fishy Back b. Birdy Back c. Land Bridge d. Piggy Back

6. _____ ware houses are licensed by the government to store goods prior to payment of taxes.
   a. Bonded b. Contract c. Public d. Cross-dock

7. Total cost approach is extension of _____.
   a. Activity based costing b. Extension of mission based costing c. Traditional P/L and Balance Sheet d. Extension of ABC & MBC both

8. RORO is a type of _____.
   a. Material handling equipment b. Warehouse c. Packaging material d.Shipping vessel

9. A network of highways connecting India's 4 Metropolitan cities is called _____.
   a. Golden Quadrilateral b. Logistics Parks c. Trainload d. Dedicated freight container

10. Elimination of waste is an important characteristic of _____supply chain
    a. Agile b. Lean c. Global d. Domestic

B) State whether the following statements are True or False: 7

a) Lack of communication between members of supply chain leads to Bull with effect.
b) Customer service is a process of providing significant value added benefits to the supply chain in a cost-effective way.
c) Time series is a qualitative method of demand forecasting
d) When the ownership of the warehouse is with the company is called as Public warehouse.
e) Geographical flexibility is high in Private warehouses.
f) The purpose of material handling is to reduce the total efforts and arrive at an optimal cost.
g) SDE analysis stands for Seasonable- Desirable – Essential.
h) In Milk run operation a Single Truck Deliver shipment from a single supply to multiple retailers.
i) EDI refers to storage and Communication of data in electronic form.
j) Lean supply chain works best in high volume, Low variety and predictable environment.

Q.2) A) Explain what is logistical performance measurement? What are the elements of logistics internal performance measurement? **(08)**

B) Explain Inbound and Out bound logistics with example. **(07)**

OR

C) From the following data, calculate a 3 period weighted moving averages from 4th Month to 8 th Month, with weights as 3, 2 and 1. The largest weight is being assigned to most recent period and current Demand Value. **(10)**

Period (Month)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Demand in Units	200	220	230	250	260	270	290	**?**

D) Compare Public and Private Warehousing **(05)**

Q.3 A) Explain the concept of Mission Based Costing (MBC). Compare MBC with traditional method of Costing. **(08)**

B) Explain Pipeline as a mode of transport with related advantages and disadvantages. **(07)**

OR

C) What are the benefits of Logistical Outsourcing? Differentiate between 3PL and 4PL Logistics. **(08)**

D) What is Primary, Secondary & tertiary Packaging. Explain the benefits of Good packaging in Modern Logistics **(07)**

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Q.4 A) Define EOQ. The annual demand for a particular item is 20000 units, unit cost is Rs. 5/- Carrying cost on an average inventory is 20% and the ordering cost per order Rs. 40/-. **(08)**

Find 1) EOQ
2) Total Inventory Cost.

B) Explain Logistics parks and Deep waterPorts. What is their importance in Modern Logistical Infrastructure? **(07)**

OR

C) Define Material Handling. Explain Guidelines or Principles of Material handling **(08)**

D) State the Principles for designing effective LIS (Information Functionality) **(07)**

Q.5) Case Study:-

According to official records, from national health organizations, as of September 27, 2021, a total of 6.1 billion doses of COVID-19 vaccination have been administered globally.Although the rapid development of COVID-19 vaccines had generated enormous excitement, health-care systems around the globe were facing the complex task of maintaining the supply chain of vaccines for their populations. There were several aspects to the COVID-19, a vaccine supply chain that makes its biggest challenges: Scale, traceability, speed, temperature control, safety and security, and the global nature of the effort and distribution. A typical supply chain solution would focus on any one of these issues, but the scientific community needs to tackle these problems altogether.

Another issue with the vaccine was the temperature control of the cold chain with extreme heat and humidity; as in many countries, daytime temperatures reach around 50°C with extensive changes in humidity. It appears to be the world's most incredible logistical difficulty, requiring a convoluted distribution, storage, freezing, and communication system. According to the WHO, 2.8 million vaccine doses were lost owing to Cold Chain problems.

Some Findings and Learnings from the challenges faced were –India being a developing nation has very limited Cold Chain storages which are otherwise also used for many other activities- needs to improve on this aspect, develop and strengthen supply chain strategies to receive, store, distribute and manage COVID-19 vaccines and their ancillary products; distribute COVID-19 vaccines from port of entry up to the most remote vaccination sites; ensure the quality, efficacy, proper tracking, reporting of vaccine utilization and safety of COVID-19 vaccines throughout the supply chain; assess, design and implement appropriate waste management mechanisms to safely treat and dispose waste while protecting the environment and populations; strengthen appropriate cold chain and logistics requirements, including reverse logistics; and provide tools to support country readiness activities to be Future ready for any catastrophic event.

a) State the Facts and analyse the case. **05**

b) Explain what is Cold Chain Logistics and its importance? **05**

c) Critically explain the role of Cold Chain Logistics in Effective distribution & administration of Covid -19 Vaccines? **05**

OR

B) Write Short Notes on: (Any 3) **(15)**

a) Reverse Logistics
b) Perfect Order
c) Bullwhip Effect
d) Global Logistics Trends
e) LASH