

Indian Maritime University
(A Central University, Govt of India)
End Semester Examinations – December 2025
Programme Name: MBA (PSM / ITL)
Semester: III
Subject Code: PG21/22E3306
Subject Name: Air Cargo Management

Date: 22.12.2025

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

Attempt All

(10 x 1 = 10 Marks)

1. When the centre of gravity moves aft within permissible limits, aircraft fuel efficiency _____.
2. Lithium batteries packed with equipment are classified under _____ UN code.
3. Which PPP model retains ownership with the public authority but leases operation to a private concessionaire?
A. BOT B. BOO C. OMT D. BOOT
4. If cargo throughput rises 8 % and energy consumption 6 %, energy-efficiency gain \approx _____ %.
5. Which KPI best links sustainability and profitability in cargo operations?
A. CO₂ per CTK B. Yield per RTK C. Turnaround Time D. Load Factor
6. The revocation of Celebi Airport Services' security clearance in India is an example of a financial risk. _____ (True / False)
7. China's approval of ANA's take-over of Nippon Cargo Airlines was conditional on:

- A. Fleet retirement B. Ground-handling competition C. Tariff freeze
D. Slot reduction

8. The most limiting factor for cargo operations at Port Blair airport is apron space. ____ (True / False)

9. ICAO Annex 17 requires _____ % cargo screening at all airports.

10. Which subsystem most strongly interfaces with cargo operations in a system-of-systems safety view?

- A. Air Traffic Management B. Maintenance C. Customs D. Security

Section B

Attempt All

(5 x 2 = 10 Marks)

11. Explain the term *Chargeable Weight* and how it affects revenue optimisation in cargo pricing.

12. What does the 11-digit number on an *Air Waybill (AWB)* represent?

Explain how the airline prefix and serial number are used for tracking and documentation.

13. List any four operational limitations that influence air-cargo turnaround time at airports.

14. Discuss environmental and regulatory challenges in expanding coastal cargo hubs such as Kochi (COK) or Trivandrum (TRV).

15. Describe two recent trends in India's air-freight digitalisation and analyse their impact on risk and efficiency.

Section C

Answer any 5 Questions

(5 x 8 = 40 Marks)

16. An airline operates two regional routes—Chennai–Dubai and Chennai–Singapore—with consignments in the given table. Using its data, find the following: (Consider the **Aircraft payload capacity as 7 t**)

- a) Prepare a consolidation plan that maximises aircraft utilisation and total revenue.
b) Discuss operational and documentation considerations in cargo consolidation (e.g., master AWB, ULD planning, customs interface).

Shipment	Destination	Weight (t)	Freight Rate (₹/kg)
A	Dubai	2.0	160
B	Singapore	1.5	150
C	Dubai	3.0	160
D	Singapore	0.5	150

17. A ground handler manages 30 turnarounds per day at an average TAT of 45 minutes. If process improvements reduce TAT by 10 %, compute daily time saved. Discuss how lean process design and human-factor interventions contribute to such improvements.
18. A consignment of high-value electronics (USD 500 000) is flown from Mumbai to Frankfurt. The carrier's liability limit under the Montreal Convention is 22 SDR/kg. Gross weight = 2 500 kg. 1 SDR \approx ₹110.
- Calculate the maximum carrier liability in Indian Rupees.
 - If the shipper declares a higher value and pays an additional premium of 0.25 % of declared value, compute total insurance cost.
 - Discuss security and screening measures under ICAO Annex 17 that mitigate cargo theft and tampering risks.
19. With reference to ICAO Annex 18 and Doc 9284, explain the roles and responsibilities of the operator, shipper, and authority in the case of transport of dangerous goods.
20. Discuss the benefits and implementation challenges of IMS in improving efficiency, compliance, and stakeholder confidence.
21. Using the Port Blair cargo operations case, analyse factors limiting throughput expansion and recommend infrastructure and governance solutions to enhance resilience and safety in remote-island cargo hubs.
22. Drawing from COVID-19 vaccine or disaster-relief operations, propose ways to strengthen India's air-cargo cold-chain capabilities for future global health emergencies.

-----End of the Question Paper-----