

Indian Maritime University
(A Central University, Govt. of India)
End Semester Examinations – December 2023
Programme Name: MBA (ITLM/PSM)
Semester: End Sem. Exam
Subject Code: PG21E3301/PG22E3301

Subject Name: TECHNOLOGY IN PORT OPERATIONS

Date: 13.12.2023

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/ instructed.

1. 5G connectivity is preferable to 4G because
 - a) Robots can use this only
 - b) Can simultaneously connect many types of devices
 - c) Consumes very small energy
 - d) (b) & (c)

2. Which particular technology group is used by Augmented Reality?
 - a) Multimedia and 2D- Modelling, on-line Registration, Intelligent Interaction, Sensing
 - b) Multimedia, 3D-Modelling, Real-time Tracking and Registration, Intelligent Interaction, Sensing
 - c) Multimedia, 3D-Modelling, Big data collection and Registration
 - d) None of the above

3. Computers can understand images
 - a) Through deep learning of colour theory
 - b) Directly through machine learning
 - c) Through HEX, interpreting RGB
 - d) None of the above

4. SRI stands for (especially in digital) technology
 - a) Sub-resource integrity
 - b) Super resolution imaging
 - c) Socially responsible investing

- d) None of the above
5. Which one of the following is **NOT** a "cyber physical system?"
- Robotic system
 - Smart Grid
 - Software for playing chess
 - Industrial Control System
6. Real life examples of digital monitoring & diagnosis in ports include (MARK **INCORRECT** ITEM):
- Load Collision Prevention System (LCPS)
 - Truck Positioning System (TPS)
 - Container Number Recognition System
 - Tug allocation and control system
7. Remote monitoring system can be used for (**CHECK THE INCORRECT OPTION**)
- Record wind and tidal data
 - Monitor coastal sections or large seaports
 - Monitor attendance of the site staff
 - Monitor boats, ships, and marinas
8. Cloud computing means
- Using company's own hosted website
 - Providing a hosted service through the Internet
 - Using a supercomputer that allows regular access
 - None of these
9. Machine learning is a sub-field of artificial intelligence that allows computers towithout being explicitly..... (Fill in the blank)
10. Most recent definition of a port is "a port is a" (Fill in the blank)

Section B

Five Questions of 02 Marks each

11. What is AR simulation? Explain briefly.
12. Describe how a digital twin can be utilized in container crane operation and maintenance.
13. Describe four important ingredients of a block chain.
14. What are the intended outcomes of a Smart-Port?
15. What are the **5-V-s** in **big data**?

Section C

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

16. Describe how a **digital twin** can be utilised in container crane operation and maintenance.
17. Define a middle office and indicate three decisive factors implementation of "middle office" in a large organisation.
18. Explain how deep learning is assisting the **Machine Vision** – specific mention to be made on CNN (convolutional neural network)
19. Elaborate the difference between **CPS and IoT** – with reference to five critical features.
20. What are the real advantages of ETA management through AI – both in ports and shipping? Commercial aspects to be highlighted
21. Critically examine why the acceptance of **augmented reality** slow in port sector.
22. Mention five real-life applications of CPS (Cyber physical systems).
