

**Indian Maritime University**  
**(A Central University, Govt. of India)**  
**End Semester Examinations – December 2024**  
**Programme Name: MBA (ITL/PSM)**  
**Semester: III**  
**Subject Code: PG22/21E3301**

**Subject Name: TECHNOLOGY IN PORT OPERATIONS**

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Date: 16.12.2024	Max Marks: 60
Duration: 03 Hrs	Pass Marks: 30

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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 CONNETIVITY is preferable to 4G because (tick the right one)
  - 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? (Tick the **correct one**)
  - 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"?
  - a) Robotic system
  - b) Smart Grid
  - c) Software for playing chess
  - d) Industrial Control System
  
6. Real life examples of digital monitoring & diagnosis in ports include (MARK **INCORRECT ITEM**):
  - a) Load Collision Prevention System (LCPS)
  - b) Truck Positioning System (TPS)
  - c) Container Number Recognition System
  - d) Tug allocation and control system
  
7. Remote monitoring system can be used for (**CHECK THE INCORRECT OPTION**)
  - a) Record wind and tidal data
  - b) Monitor coastal sections or large seaports
  - c) Monitor attendance of the site staff
  - d) Monitor boats, ships, and marinas
  
8. Cloud computing means (**TICK THE RIGHT ANSWER**)
  - a) Using company's own hosted website
  - b) Providing a hosted service through the Internet
  - c) Using a supercomputer that allows regular access
  - d) None of these
  
9. Machine learning is a sub-field of artificial intelligence that allows computers to .....without 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).

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