

Predictive Maintenance Technologies in Manufacturing

Engineering · Answer Key · 10 Questions

1. What is the primary goal of predictive maintenance (PdM)?

- A) Reacting to failures after they occur
- B) Predicting breakdowns before they happen**
- C) Performing frequent scheduled maintenance
- D) Ignoring equipment condition

2. Which technology relies on sensors to detect vibration and sonic data in rotational machinery?

- A) Digital Twin Predictive Analytics (DTPA)
- B) Edge AI Predictive Maintenance (EAIPM)
- C) Vibration Based Machine Learning (VML)**
- D) Reactive Maintenance

3. Which of the following is NOT an advantage of Edge AI Predictive Maintenance (EAIPM)?

- A) Real-time fault identification without cloud interference
- B) Adaptability for SMEs
- C) Cost-effectiveness compared to VML and DTPA
- D) Easy integration with large-scale cloud analytics**

4. According to Deloitte, what is the expected global predictive maintenance market size by 2030?

- A) USD 10 billion
- B) USD 28 billion**
- C) USD 50 billion
- D) USD 100 billion

5. Which technology was identified as the most favorable for commercialization due to its balance of performance, cost, and adaptability?

- A) Vibration Based Machine Learning (VML)
- B) Digital Twin Predictive Analytics (DTPA)
- C) Edge AI Predictive Maintenance (EAIPM)**
- D) Preventative Maintenance

6. Which commercialization pathway involves incorporating a company's technology into another manufacturer's products?

- A) Start-up Formation
- B) Licensing to OEMs**
- C) Strategic Partnership
- D) Direct Sales

7. What is a key advantage of pursuing a start-up formation for commercializing EAIPM?

- A) Low initial investment
- B) Rapid market penetration
- C) Effective IP control and brand ownership**
- D) Shared R&D investment

8. What is a main challenge in strategic partnerships for commercializing EAIPM?

- A) Low market access
- B) High capital investment
- C) Negotiation complexity and IP authorization**
- D) Limited growth potential

9. Which commercialization pathway was recommended for EAIPM due to its strategic alignment, balanced control, and rapid market access?

- A) Licensing to OEMs
- B) Start-up Formation
- C) Strategic Partnership**
- D) Direct Sales

10. What is the primary focus of EAIPM in the manufacturing sector?

- A) Replacing traditional maintenance methods entirely
- B) Enhancing equipment maintenance through cost efficiency and sustainability
- C) Ignoring cybersecurity concerns**
- D) Increasing reliance on cloud computing