

MSc DEGREE EXAMINATION MAY 2026
(Fourth Semester)

Branch – **APPLIED ELECTRONICS**

MAJOR ELECTIVE COURSE – II : INDUSTRY STANDARDS 5.0

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	Which of the following is a key principle of Industry 4.0? (i) Interoperability (ii) Isolation (iii) Manual control (iv) Centralization	K1	CO1
	2	The fourth industrial revolution is known as (i) Industry 3.0 (ii) Industry 2.0 (iii) Industry 4.0 (iv) Industry 5.0	K2	CO1
2	3	Product Life Cycle Management (PLM) deals with (i) Product marketing (ii) Only product design (iii) Entire life cycle of a product (iv) Only product manufacturing	K1	CO2
	4	Industry 5.0 mainly focuses on (i) Human-centric production (ii) Agriculture automation (iii) Machine-centric production (iv) Manual production	K2	CO2
3	5	Cybersecurity is mainly used to (i) Protect digital systems from attacks (ii) Reduce production cost (iii) Increase the speed of machines (iv) Improve packaging	K1	CO3
	6	A Cyber-Physical System integrates (i) Software only (ii) Physical systems and computational systems (iii) Hardware only (iv) Electrical circuits only	K2	CO3
4	7	Big Data analytics is mainly used for (i) Manual calculations (ii) Data analysis and decision making (iii) Data visualization only (iv) Data deletion	K1	CO4
	8	IoT stands for (i) Internet of Things (ii) Integrated online technology (iii) Internal operating tool (iv) Internet of Technology	K2	CO4
5	9	Digital twin refers to (i) Human robot interaction (ii) Manual simulation (iii) Virtual model of a physical system (iv) Physical copy of the machine	K1	CO5
	10	Additive manufacturing is commonly called (i) 3D Printing (ii) CNC machining (iii) Injection molding (iv) Casting	K2	CO5

Cont...

SECTION - B (35 Marks)
 Answer ALL questions
 ALL questions carry EQUAL Marks

(5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Discuss the evolution of Industrial Revolution leading to Industry 4.0.	K3	CO1
		(OR)		
	11.b.	Describe the characteristics and principles of Industry 4.0.		
2	12.a.	Discuss the challenges and key technologies of Industry 5.0.	K3	CO2
		(OR)		
	12.b.	Explain the concept and essence of Industry 5.0.		
3	13.a.	Discuss cybersecurity risks and strategies for securing cyber-physical systems.	K4	CO3
		(OR)		
	13.b.	Analyze the components of Cyber-Physical Systems.		
4	14.a.	Discuss Big Data analytics and its role in predictive maintenance.	K4	CO4
		(OR)		
	14.b.	Mention the applications of IoT in manufacturing industries.		
5	15.a.	Discuss the concept of Digital Twin and its benefits in industry.	K3	CO5
		(OR)		
	15.b.	Explain the principles of additive manufacturing and 3D printing.		

SECTION - C (30 Marks)
 Answer ANY THREE questions
 ALL questions carry EQUAL Marks

(3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Describe the components and technologies of Industry 4.0 in detail.	K3	CO1
2	17	Discuss Human-centric, resilient and sustainable manufacturing in Industry 5.0.	K4	CO2
3	18	Analyze the integration of physical and virtual systems in Cyber-Physical Systems with a diagram.	K5	CO3
4	19	Discuss the role of Artificial Intelligence and Machine Learning in manufacturing quality control and optimization.	K4	CO4
5	20	Explain Digital Twin technology and supply chain transformation in smart manufacturing.	K3	CO5