AUTUMN MID-SEMESTER EXAMINATION-2024-25
School of Computer Engineering
Kalinga Institute of Industrial Technology
Deemed to be University

3rd Semester

Subject: Industry 4.0 Technologies (EX20001) (Regular)

Instructions:-

- 4 (four) questions are to be attempted.
- Question Paper consists of 4 (four) Sections i.e. **A, B, C and D.**
- Section **A** is Compulsory and covers the entire mid semester syllabus.
- Attempt any 1 (one) questions from the Sections **B, C and D.**

Time: 1.5 hours **Full Marks: 20**

The figures in the right-hand side indicate full marks.

Question No	Section-A	Question	CO	Marks
Q1.	Question Type (SAT)	Answer the following questions in short.		[1x5]
a		With proper justification, explain two significant obstacles that must be addressed to successfully integrate Industry 4.0 technologies in the manufacturing industry.	CO1	
b		Explain key differences between Industry 4.0 and conventional automation based industries.	CO1	
c		How does bigdata enhance the performance of retail sector?	CO3	
d		What is 3D printing? Describe the process involved for 3D printing of a water bottle.	CO3	
e		Explain the immutable property of block-chain technology.	CO3	
		Section-B		5
Q2.		What design principles are pivotal for successfully implementing Industry 4.0 in the energy sector? Provide compelling examples to demonstrate these principles.	CO1	
Q3.		If a startup company wants to design an autonomous vehicle, what are the steps involved in transferring from their initial idea to a successful product?	CO1	
		Section-C		5
Q4		How does artificial intelligence differ from human intelligence? Explain the scope of applications of AI in the healthcare sector.	CO3	
Q5		Define the characteristics of big data and explain the different methods discussed in your course for analyzing it.	CO3	
		Section-D		5
Q6		Discuss the differences between conventional and cloud computing, and explain how cloud computing can make industrial operations reliable and profitable.	CO3	
Q7		What challenges emerge in the development of cyber-physical systems (CPS), and how does each layer of the 5C architecture model support intelligent agriculture applications?	CO3	

All parts of a question should be answered at one place only