



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 | | <u>5</u> |
| 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