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G.R. No.	
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**DECEMBER 2021-ENDSEM EXAM**  
**FINAL YEAR B. TECH. (MECH) (SEMESTER - VII)**  
**COURSE NAME: ROBOTICS**  
**COURSE CODE: IOEUA40184A**  
**(PATTERN 2018)**

Time: [1 Hour]

[Max. Marks: 30]

**(\*) Instructions to candidates:**

- 1) Answer Q.1 OR Q.2, Q.3 OR Q.4, Q.5 OR Q.6.
- 2) Draw the diagrams where necessary.
- 3) Use of scientific calculator is allowed
- 4) Use suitable data where ever required

Q1. a Rephrase the meaning of Automation? Justify the way it help industries to be competitive in market? 4 Marks

Q1.b Simplify the significance of Communication Protocol and its types? 6 Marks  
Describe any one Communication Protocol.

**OR**

Q2.a Prepare the list of types of sensors used in Robotic Systems? Describe any one field sensors used in Robotic cell in detail. 4 Marks

Q2.b Rephrase your understanding of Industrial Internet Of Things? Give a detailed account of design principles of Industry 4.0. 6 Marks

Q3. a Give and account of language elements and function that are used while programming the robot? 4 Marks

Q3.b Prepare list of types of Robot Programming and describe any one type in details. 6 Marks

**OR**

Q4.a Demonstrate programming of Continuous Path control robot 4 Marks

Q4.b List down different types of coordinate systems? Distinguish types of interpolation we use for programming of robot? 6 Marks



Q5. a When it is likely that labors will accept the use of Robots in industry? 4 Marks

Q5.b Discuss with examples different types of costs associated with installation of Robotic systems. 6 Marks

**OR**

Q6.a What are the Economic, Social, and Safety factors that promote the use of Robots in industry? 4 Marks

Q6.b Should the use of industrial robots be encouraged or opposed? 6 Marks