JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-1 EXAMINATIONS- 2022

B.Tech-VII Semester (Open elective course) (CSE, IT, ECE, CE)

COURSE CODE (CREDITS): 20B1WEC731 (3) MAX. MARKS: 15

COURSE NAME: Automation and Robotics

COURSE INSTRUCTOR: Dr. Pardeep Garg MAX. TIME: 1 Hour

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

Q1. Defining the equation of profit, discuss in detail the role of automation in maximizing the profit in industries considering each elements of the equation. CO-1 **[3 marks]**

Q2. Depending upon the features, factory types, and with examples; describe the types in which automation can be categorized. CO-1 **[3 marks]**

Q3. *'It is said that the architecture of automation system is pyramid in shape and not cylindrical'* prove this statement by drawing the architectural diagram, discuss each block in detail and comment on its pyramidal shape. CO-1 **[3 marks]**

Q4. Industries have seen revolutions beginning from First Industrial Revolution till Industry 4.0. Which technological/socioeconomic features have become the driving forces for these industrial revolutions, discuss in detail? CO-1 **[2 marks]**

Q5. A chemical industry is automated; it has to observe the temperature parameter continuosly. Which element of automation system can be employed in this situation? With the help of a block diagram, discuss the role and functioning of that element. CO-1 **[2 marks]**

Q6. *'Actuators are all around us'* justify this statement considering few real-time examples; discuss the role and functioning of actuators. Differentiate between pneumatic, hydraulic, and electric actuators by discussing their advantages and limitations. CO-1 **[2 marks]**