

Roll No. 

--	--	--	--	--	--	--	--	--	--	--	--

Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (Automation &amp; Robotics) (2018 Batch) (Sem.-3)

**INDUSTRIAL AUTOMATION AND ROBOTICS**

Subject Code : BTAR-301-18

M.Code : 76500

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A****Write briefly :**

1. Define Automation.
2. What is the basic classification of the feeder devices?
3. Give the symbol of 3/2 push button spring return DC valve.
4. Explain NAND gate and NOR gate.
5. List the different industrial applications of robots.
6. What is Coanda effect?
7. What is the purpose of ladder logic diagrams in PLC?
8. Discuss the construction of time delay valve.
9. List the advantages of pneumatic systems over hydraulic systems.
10. What is teach pendant in robots?

**SECTION-B**

11. Discuss the socio economic impacts of automation.
12. With a neat sketch, describe the constructional detail and working of vibratory bowl feeder.
13. Draw and explain a pneumatic circuit to operate a double acting cylinder.
14. With a neat line diagrams, discuss the classification of robots based on geometry.
15. Write a Boolean expression for the following truth table. Can the Boolean expression be simplified?

Input A	Input B	Input C
0	0	1
0	1	0
1	0	1
1	1	0

Implement the above Boolean expression using standard symbols of logic gates.

**SECTION-C**

16. Write short notes on :
  - a) Machine vision
  - b) Robot path movement
17. Discuss the construction, design and mountings for the hydraulic cylinders.
18. Discuss in detail, any two types of robot programming.

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**