

Roll No.

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

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(ME) (2011 Onwards) (Sem.-5)
INDUSTRIAL AUTOMATION AND ROBOTICS

Subject Code : BTME-504

Paper ID : [A2131]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION 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 has to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.

SECTION - A

1. Write briefly :

- (a) State the advantages of automating production operations.
- (b) What is a Pressure sequence valve?
- (c) List different feeder used for job orientation.
- (d) Explain NAND gate and NOR gate.
- (e) Distinguish between hydraulic and pneumatic systems.
- (f) What is a teach pendant?
- (g) What do you understand by degree of freedom of a robot?
- (h) Sketch the standard symbol for a pneumatic motor.
- (i) What are the main areas in which Robots are utilized?
- (j) Classify sensors used in Robotics.

SECTION-B

2. Draw a pneumatic circuit to operate double acting cylinder.
3. What are the various transfer mechanisms? Discuss
4. Explain architecture of a Programmable logic controller with the help of neat sketch.
5. Write a brief note on low cost automation.
6. What are the different fluid power control elements? Discuss

SECTION-C

7. With neat sketch explain the operation of simple pressure relief valve and sequence valve with spring loading.
8.
 - a) What is the role of Boolean Algebra and truth table in fluidic circuits?
 - b) Write ladder logic diagram for the following functions :
 - i) OR
 - ii) AND
9. Write short notes on :
 - a) Applications of hydraulics automation.
 - b) Criteria used for the design of pneumatic systems.