

Roll No.

Total No. of Questions : 08]

[Total No. of Pages : 02

M.Tech.

INDUSTRIAL AUTOMATION

SUBJECT CODE : IE - 519

Paper ID : [E0627]

[Note : Please fill subject code and paper ID on OMR]

Time : 03 Hours

Maximum Marks : 100

Instruction to Candidates:

- 1) Attempt any **Five** questions.
- 2) All questions carry equal marks.

- Q1)** (a) Differentiate between programmable automation and flexible automation.
(b) Draw the symbol for a FRL unit used in pneumatics and explain its working with a sketch.
- Q2)** (a) Explain the construction and working of a 5/2 pneumatic directional control valve and draw its symbol also.
(b) Explain the need and functioning of a pressure relief valve in hydraulic systems.
- Q3)** (a) Differentiate between a hydraulic meter-in and meter-out circuit and their uses.
(b) Explain the working of a different types of escapement devices used for feeding components.
- Q4)** (a) Differentiate between continuous transfer, intermittent synchronous transfer and asynchronous work part transfer systems.
(b) Explain the construction and working of following rotory transfer mechanisms;
(i) Rack & pinion Type.
(ii) Geneva Mechanism.
- Q5)** (a) Explain the various types of motion controls used in a NC system.
(b) Define the term adaptive control and explain the basic configuration of an adaptive control machining system.

- Q6)** (a) Define CAPP and explain the working of a Generative type CAPP.
(b) Explain the construction, working and motions associated with a Robot wrist with a sketch.
- Q7)** (a) Explain the construction of SCARA, POLAR and Jointed Arm configuration robot.
(b) Explain the working of an incremental and absolute encoder used in a robotic manipulator.
- Q8)** Write notes on :
- (a) VAL-II Language.
 - (b) AML Language.
 - (c) DNC System.
 - (d) CNC System.

