

New

M.Tech

Date: 01/01/2018:

Student Exam No: \_\_\_\_\_

## GANPAT UNIVERSITY

M.tech. Sem-I [ME(AMS)] Regular Examination NOV-DEC 2017

### 3ME-105 Manufacturing Automation

Time: 3 Hours

Total Marks: 60

#### Instructions:

- 1). All questions are **compulsory**.
- 2). Figures to the **right** indicate full marks.
- 3). Answers to the two sections must be written in **separate** answer books.
- 4). Be precise and to the point in answering the descriptive questions.

#### Section – I

Que:-1 Attempt all.

- (A) Classify the types of hydraulic cylinder. Describe the working of double acting tandem cylinder and gear Motor. [05]
- (B) Discuss latch-unlatch instruction of the PLC. [05]

OR

Que:-1 Attempt all.

- (A) Which are the different types of pump are used in Hydraulic system? Explain gear pump briefly. [05]
- (B) Why the forward force and return speed is higher than the return force and forward Speed of the double acting cylinder? [05]

Que:-2 Attempt all.

- (A) Explain the block diagram of PLC with its components. [05]
- (B) Draw mete-in and meter-out circuit to control the return speed of a double acting hydraulic cylinder. [05]

OR

Que:-2 Attempt all.

- (A) Briefly Explain Pressure relief valve. Draw the symbols for Pressure relief valves used in hydraulics. [05]
- (B) Explain cushioning assembly in the cylinder. [05]

Que:-3 Attempt All.

- (A) What is difference between the on-delay timer & off-delay timer of PLC? [10]
- (B) What is the influence of following properties of hydraulic fluid on hydraulic systems?  
(1) Bulk modulus (2) Heat Dissipation (3) Rust formation  
(4) Moisture (5) Viscosity

## Section – II

**Que:-4 Attempt all.**

- (A) Explain working principle of Inductive proximity sensor with neat sketch. [05]  
(B) Discuss the USA principles for Automation in the manufacturing. [05]

OR

**Que:-4 Attempt all.**

- (A) Discuss the various features for selection the sensors. Also write any four sensor names with the function. [05]  
(B) Discuss NOR, AND, EX-OR and OR gate with examples. [05]

**Que:-5 Attempt all.**

- (A) Explain Mechanical processing information processing develop towards Mechatronic system. [05]  
(B) Explain working principle of Capacitive proximity sensor with neat sketch. [05]

OR

**Que:-5 Attempt all.**

- (A) Explain address bus, data bus & control bus of the 8085 microprocessor. [05]  
(B) What is Manufacturing Support System? Explain in detail. [05]

**Que:-6 Attempt All.**

- (A) What do you mean by feedback control system? Explain principle of servo motor. [10]  
(B) Convert a).398 decimal number to binary number  
b). 1101011.110 binary number to decimal number  
c). 6B8D hex number to binary number  
d). 888 decimal number to octal number  
e). E4 hex number to decimal number.

**END OF PAPER**