Exam No: _____

GANPAT UNIVERSITY

M.TECH.[ME-(AMS)] SEM-I CBCS REGULAR EXAMINATION NOV-DEC 2016

3ME105 Manufacturing Automation

MAX. TIME: 3 HRS

MAX. 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.

Section – I

Que:-1 **Attempt all.**

(A) How many type of miscellaneous sensor? Describe it. [05]

(B) What is the difference between Hard Automation and Soft automation? Explain with Example. [05]

OR

Que:-1 **Attempt all.**

(A) What is Manufacturing Support System? Explain the information-processing cycle in a typical manufacturing firm. [05]

(B) Discuss the various features for selection of the sensors. Also write any four sensor names with the function. [05]

Que:-2 **Attempt all.**

(A) What is manufacturing automation? Explain the disadvantages of automation in the manufacturing. [05]

(B) Explain working principle of Inductive proximity sensor with neat sketch. [05]

OR

Que:-2 **Attempt all.**

(A) What is a mechatronics system? How it integrates various discipline of engineering explain with an example? [05]

(B) Explain different strategies which are used in automation to increase productivity. [05]

Que:-3 **Attempt All.** [10]

(A) What do you mean by close loop control system? Explain servo motor.

(B) What is Automation? How you can convert the traditional Production system to Automated Production system?

Section – II

Que:-4 Attempt all.

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

(B) Write the program to perform the following operations in Microprocessor 8085. [05]

i). Add 42H and 67H
ii). Store answer in the register D.
iii). OR operation between the previous answer and 20H.
iv). Store answer in register B.
Also write down the final answer in the registers B & D.

OR

Que:-4 Attempt all.

(A) Explain the block diagram of PLC with its components. [05]

(B) Make a PLC ladder diagram for the following application. [05]
"A START pushbutton should be pressed to run the motor. The motor will automatically stop after 20 seconds. The STOP pushbutton should be used to stop the motor in case of any emergency."

Que:-5 Attempt all.

(A) Discuss OR, AND, EX-OR and NOT gate with examples. [05]

(B) Draw mete-in and meter-out circuit to control the forward speed of a DA hydraulic cylinder. [05]

OR

Que:-5 Attempt all.

(A) a). What is FRL unit? [05]
b). Explain the single stage reciprocating air compressor.

(B) Convert a).398 decimal number to binary number [05]
b). 1110011.110 binary number to decimal number
c). 6B9D hex number to binary number
d). 777 decimal number to octal number
e). E5 hex number to decimal number

Que:-6 Attempt All. [10]

(A) Explain (i) Difference between Up-counter and down-counter of PLC
(ii) Difference between on-delay & off-delay Timer of PLC

(B) Explain bus structure of 8085 microprocessor.

END OF PAPER