

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)

CLASS: B.TECH
BRANCH: PRODUCTION

SEMESTER: VII
SESSION: MO/2022

SUBJECT: PE402 AUTOMATION IN MANUFACTURING

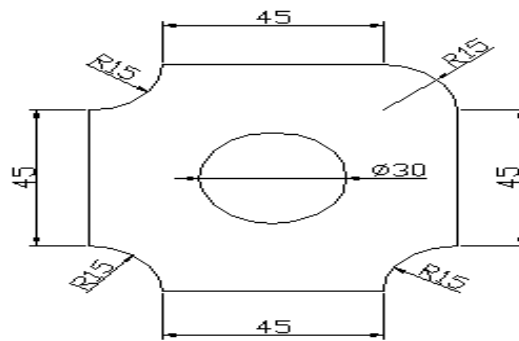
TIME: 2 HOURS

FULL MARKS: 25

INSTRUCTIONS:

1. The total marks of the questions are 25.
 2. Candidates attempt for all 25 marks.
 3. Before attempting the question paper, be sure that you have got the correct question paper.
 4. The missing data, if any, may be assumed suitably.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
-

- | | | | CO | BL |
|----|-----|---|-----|-------|
| Q1 | (a) | Explain the concept and features of the factory of the future. | [2] | CO1 2 |
| Q1 | (b) | Write down the major element and criteria for choice and implementation of automation in any manufacturing unit. | [3] | CO1 6 |
| Q2 | (a) | Write down the various automation strategies. | [2] | CO1 6 |
| Q2 | (b) | Demonstrate: 1) Ultrasonic sensor 2) Filters 3) Battery | [3] | CO1 3 |
| Q3 | (a) | What do you mean by NC coordinate system? Illustrate in detail with neat sketches and examples. | [2] | CO2 3 |
| Q3 | (b) | Write Down the NC Part Programming of the following component using the Absolute & Incremental method. All dimensions in cm. Assume cutter dia & other data required. | [3] | CO2 6 |



- | | | | | |
|----|-----|--|-----|-------|
| Q4 | (a) | What is adaptive control system? Discuss its applications with example. | [2] | CO2 6 |
| Q4 | (b) | Explain the various control and other features of CNC system in detail. | [3] | CO2 2 |
| Q5 | (a) | Write about Automatically Programmed Tools (APT) Programming. | [2] | CO2 6 |
| Q5 | (b) | Write about the Principle of Operation of Linear and Rotational Sensors with a suitable diagram. | [3] | CO3 6 |

:::::: 28/09/2022 :::::M