BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI

(MID SEMESTER EXAMINATION)

CLASS: BE **SEMESTER : VI**

BRANCH: PRODUCTION **SESSION : SP/17**

SUBJECT: PE6007-MANUFACTURING AUTOMATION & ROBOTICS

TIME: 1.5 HOURS **FULL MARKS: 25**

INSTRUCTIONS:

1. **The total value of the questions are 30 marks.**
2. **Candidates may attempt for all 30 marks.**
3. **In those cases where the marks obtain exceed 25 marks. The excess will be ignored.**
4. **Before attempting the question paper, be sure that you have got the correct question paper.**
5. **The missing data, If any, may be assumed suitably.**
6. **Nothing should be written on front or back of the question paper except tick marking.**

Q1. Explain various types of automation as a function of product variety and production volume. [5]

Q2. What are the benefits of automation? [5]

Q3. Discuss any five new features added in CNC technology in comparison with NC. [5]

Q4. (a) What are the different types of system configurations of automated production lines? [2]
(b) What is Adaptive control in context to CNC machining. Enumerate various types of sources of variability in machining? [3]

Q5. Prepare complete CNC manual part program for milling of the part shown in Fig1. Assume suitable data for speed and feed. Use an end mill of 8 mm diameter. The origin of the workpiece is bottom left hand corner. [5]

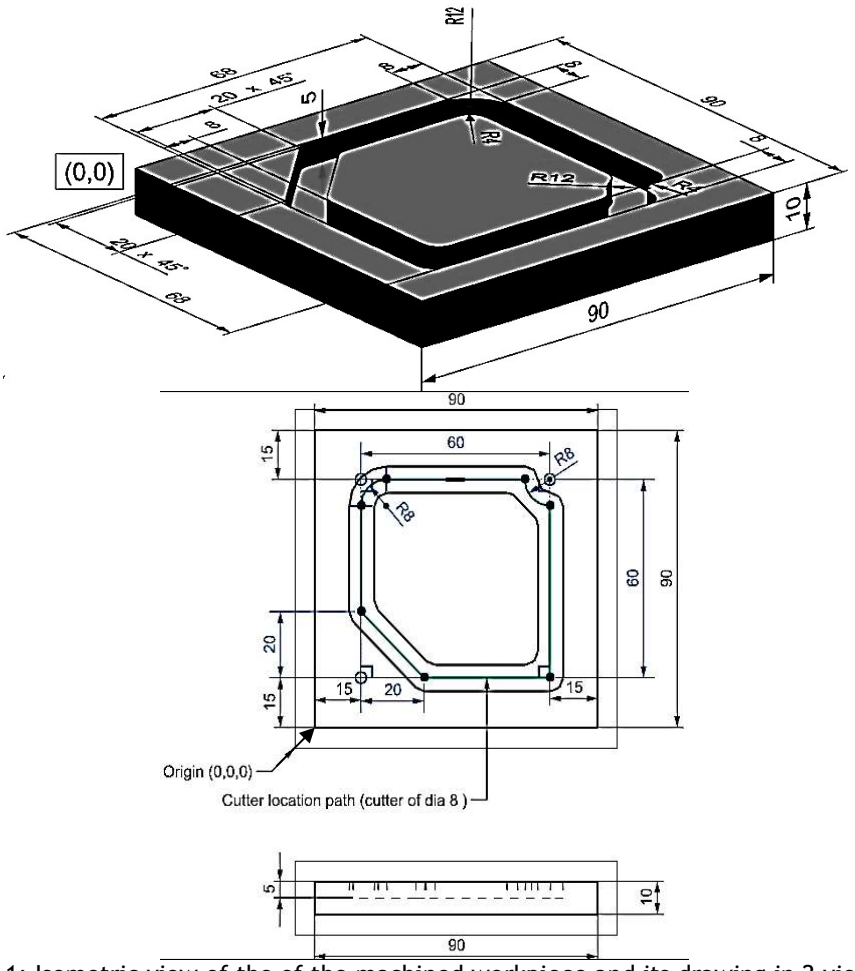


Fig 1: Isometric view of the of the machined workpiece and its drawing in 2 views

PTO

Q6. Prepare complete CNC part program in APT for milling of the part shown in Fig 1. Assume suitable data for speed and feed. Use an end mill of 8 mm diameter. The origin of the workpiece is bottom left hand corner. [5]

*******02.03.17*****M**