

**B.Tech. MECHANICAL ENGINEERING
(COMPUTER INTEGRATED
MANUFACTURING)**

Term-End Examination

00338

December, 2016

**BME-004(S) : CNC TECHNOLOGY AND
PROGRAMMING**

Time : 3 hours

Maximum Marks : 70

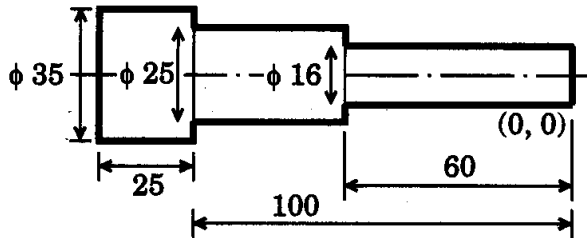
Note : Answer any *five* questions. All questions carry equal marks. Assume missing data, if any.

1. (a) How are the CNC machines different from other manufacturing machines ? Explain briefly. 7
- (b) List out the advantages and applications of CNC machine tools in manufacturing industry. 7
2. (a) What are the different co-ordinate systems used in NC systems ? Explain. 7
- (b) Name the various drives used in CNC machine tools. Explain any one of them. 7

3. (a) What are the design features of CNC machine tools ? Differentiate between CNC and DNC control systems. 7
- (b) Explain the data processing in a CNC machine tool in closed loop control. 7
4. (a) Explain the procedure used to specify the feed rate and spindle speed in case of CNC machining centres. 7
- (b) What are the various controlled axes in milling and drilling machines ? Explain briefly with the help of sketches. 7
5. (a) What is Flexible Manufacturing System (FMS) ? Explain the need of FMS. 7
- (b) What are the types of communication systems used with CNC machine tools ? Give a brief description of each of them. 7
6. (a) Explain the purpose of miscellaneous functions (M-codes) and (G-codes) in CNC programming with suitable examples. 7
- (b) Explain the procedure used for guiding the Automated Guided Vehicle System (AGVS) along its path. 7
7. (a) Discuss about automated storage/retrieval system (AS/RS). State its application in the manufacturing industry. 7

- (b) Write the part program for machining on CNC turning centre the component shown in the figure given below.
(All dimensions are in mm)

7



Figure