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BME-004

**B. TECH. MECHANICAL
ENGINEERING (COMPUTER
INTEGRATED MANUFACTURING)
(BTME)**

Term-End Examination

June, 2019

**BME-004 : CNC TECHNOLOGY AND
PROGRAMMING**

Time : 3 Hours

Maximum Marks : 70

*Note : Answer any five questions. All questions
carry equal marks. Use of Scientific
calculator is permitted.*

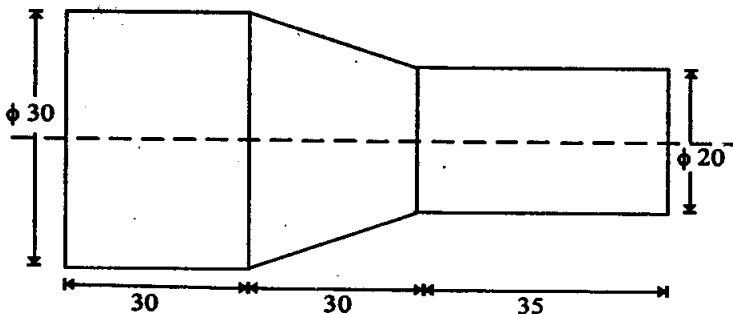
1. (a) Explain CNC machine with the help of a
block diagram. 7

- (b) List the advantages and applications of
CNC machine tools in manufacturing
industry. 7

(A-11) P. T. O.

2. (a) Name the various drives used in CNC machine tools. Explain any *one* of them. 7
- (b) Briefly describe the CNC machining center. Mention the requirement of tool pre-setting in CNC machining. 7
3. (a) Explain the data processing in a CNC machine tool in closed loop control. 7
- (b) What do you understand by the term DNC ? What are the situations under which DNC will be beneficial ? 7
4. (a) Explain the procedure used to specify the feed rate and spindle speed in case of CNC machining centres. 7
- (b) Write about the APT language structure with at least *five* library functions in addition to arithmetic functions. 7
5. (a) What is Flexible Manufacturing System (FMS) ? What is the need of FMS ? Explain. 7
- (b) What is the importance of preparatory functions in a CNC machining centre programming ? Give the description of any *three* functions and their applications. 7

6. (a) What is a modem ? Why is it necessary in certain applications ? Give the application of modem in CNC machine tool application. 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 manufacturing industry. 7
- (b) Write a part programme for the machining on CNC turning centre for a component shown in Fig. 7



All dimensions are in mm

8. Write short notes on the following : $4 \times 3 \frac{1}{2} = 14$

- (a) Unmanned machining
- (b) Part programming
- (c) Cell layout
- (d) Circular interpolation