BME-004

B.Tech. MECHANICAL ENGINEERING (COMPUTER INTEGRATED MANUFACTURING)

Term-End Examination

June, 2016

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## BME-004 : CNC TECHNOLOGY AND PROGRAMMING

Time : 3 hours   *Maximum Marks : 70*

*Note : Answer any **seven** questions out of ten questions. All questions carry equal marks. Assume missing data, if any.*

1. (a) Write about Machine Control Unit (MCU) of an NC machine.   5

   (b) Explain about the features of CNC machines with their limitations.   5

2. (a) Explain five commonly used preparatory and miscellaneous codes used in CNC milling.   5

   (b) Explain the classification of NC machines.   5

3. (a) Write about APT General Processor.   5

   (b) What are the requirements of thread cutting in a turning centre ?   5

4. Following figure shows the plan of the component to be machined. All the holes are to be drilled using φ 15 mm drill and are to be bored by φ 18 mm bore. Using the data given, write the part program. *10*

(*Note :* All dimensions are in mm)
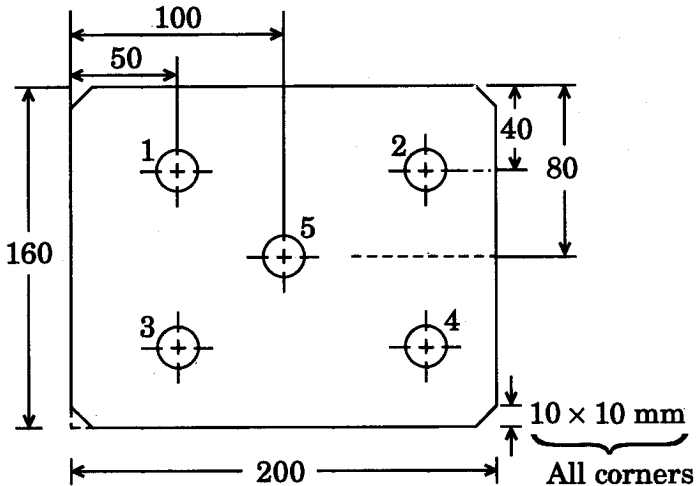
5. Explain the In-process Gauging methods with the help of suitable diagrams. *10*

6. What is the difference between NC, CNC and DNC ? Give their usage with appropriate examples and reasons. *10*

7. Give the various drives and actuators used in CNC machines. *10*

8. (a) Write the 'address characters' for CNC machines. *5*

(b) What are the reasons for the popularity of CNC controlled production machine tools ?

5

9. (a) Explain the features and characteristics of a typical Flexible Manufacturing System (FMS). *6*

(b) Brief about FMS Communications. *4*

10. What are the various system layouts in FMS ? Explain in detail with suitable diagrams. *10*

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