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BIMEE-009

B.Tech. – VIEP – MECHANICAL ENGINEERING (BTMEVI)

Term-End Examination

00503

December, 2016

BIMEE-009 : COMPUTER AIDED MANUFACTURING

Time : 3 hours *Maximum Marks : 70*

Note : *Answer any **five** questions. All questions carry equal marks.*

1. (a) Explain the organization of automated manufacturing system with neat sketch. 7

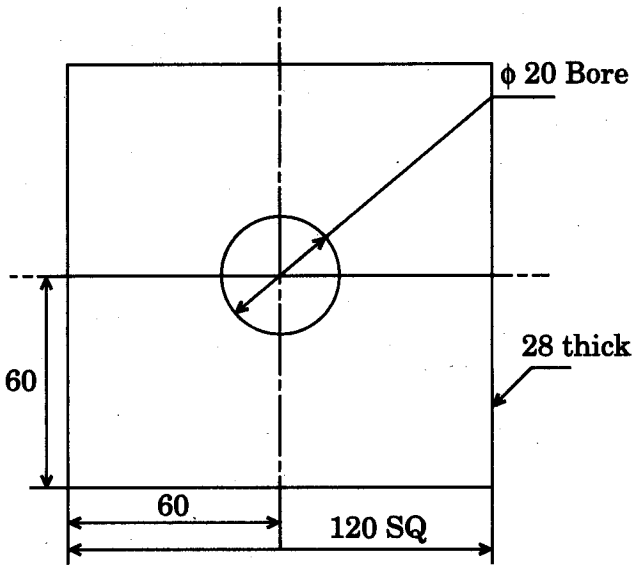
(b) What are the advantages and disadvantages of automation ? 7

2. (a) What are the reasons that lead to the development of numerical control ? How can the accuracy of machining be improved in the NC system ? 7

(b) What are the functions of drives ? Elaborate different drives used for NC machine tools. 7

3. (a) What are the most commonly used NC part programming languages ? Explain APT language with suitable example. 7

(b) Write the part programming for the machining operation given in the figure by using G-codes and M-codes. 7



All dimensions are in mm

4. (a) Explain the construction of a stepper motor. Describe its robustness and life. 7

(b) Why are the adaptive control systems easier to be installed on NC machines ? What are the benefits of adaptive control ? 7

5. (a) Explain the digital differential integrator with a suitable diagram. 7

(b) What is the Group Technology concept in manufacturing ? Discuss the various stages in Group Technology planning. 7

6. (a) How do you implement the CAD/CAM in job shop industries ? Discuss. 7

(b) Explain about automatic tool changer and its advantages. 7

7. (a) Write descriptive notes on "Basic robot motors". How are these motors provided to a robot ? 7

(b) What do you mean by intelligent manufacturing ? Explain how the concept of artificial intelligence helps in achieving intelligent manufacturing. 7

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

(a) Computer Aided Manufacturing (CAM)

(b) Robot Programming

(c) Control Loop in Contouring Systems

(d) DDA Software Interpolator