



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2012/2013**

COURSE NAME : COMPUTER AIDED DESIGN
AND MANUFACTURING

COURSE CODE : BDD 4023/BDD 40203

PROGRAMME : BACHELOR'S DEGREE OF
MECHANICAL ENGINEERING
WITH HONOUR

EXAMINATION DATE : JUNE 2013

DURATION : 3 HOURS

INSTRUCTIONS : ANSWER **FOUR (4)** QUESTIONS
ONLY FROM FIVE QUESTIONS
PROVIDED

THIS QUESTION PAPER CONSISTS OF SIX (6) PAGES

- Q1** (a) Compare the differences between Simplex and Duplex in the communication modes. Give an example for each mode. (4 marks)
- (b) ISO-Open System Interconnection (OSI) model has a series of seven layers in that take part in communication process. Analyze the function of:
- (i) Application layer
 - (ii) Transport layer
- (6 marks)
- (c) You are required to propose a local area network setup in your organization. The purpose of this network is to connect between the personal computers to the work station, CNC machine and PLC robots. Explain on how to set up the network including the wiring, network topology style and interfaces. (10 marks)
- Q2** (a) Describe the binary coding system in Computer Numerical Control (CNC) part programming. (2 marks)
- (b) There are **FOUR (4)** basic terms used in CNC. Discuss each of them. (8 marks)
- (c) Construct the CNC programming by the given drawing in **Figure Q2(c)**. (10 marks)
- Q3** (a) Give the definition of process planning and what are the approaches available in this planning. (4 marks)
- (b) The part features need to be identified in the manual approach of process planning. List down four of the features. (4 marks)
- (c) You are required to machining the component given in **Figure Q3(c)**. As a CAD/CAM engineer, construct the details instruction of the process planning. (12 marks)

- Q4** (a) Explain the differences in Terms and Concept Analogies between Object Oriented and Traditional Programming. (5 marks)
- (b) Discuss each of these models in Object Oriented Modeling system.
- (i) Object model
 - (ii) Dynamic model
 - (iii) Functional model
- (9 marks)
- (c) Differentiate between Library Class Hierarchy and User Class Hierarchy. (6 marks)
- Q5** (a) Explain the function of B-spline surface and its advantage. (3 marks)
- (b) Solid model consists of both the topological and geometrical data, complete description of the solid in a certain form manufacturing. Discuss on the approaches used in order to create solid model. (7 marks)
- (c) **Figure Q5(c)** shows a product of impeller. As a CAD/CAM engineer, you need to redraw the impeller using a CAD software. Propose a drawing method so that the task can be completed much faster. (10 marks)

- END OF QUESTION -

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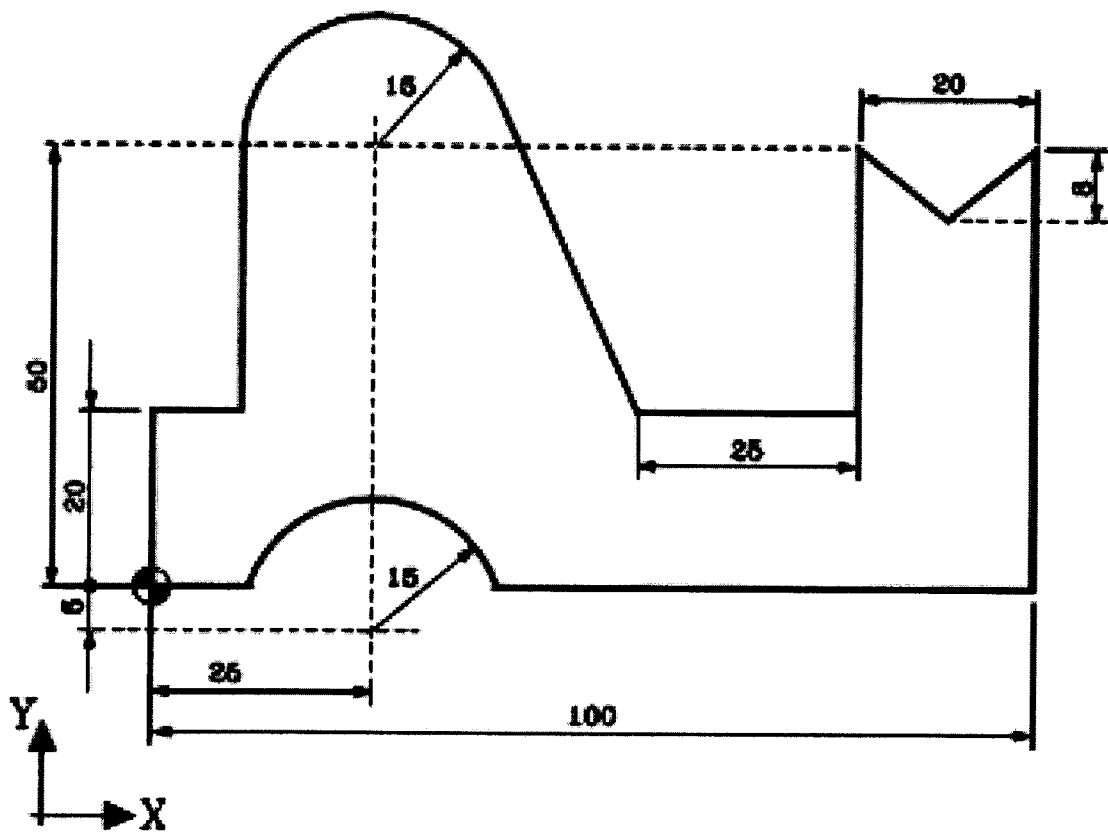


FIGURE Q2(c)

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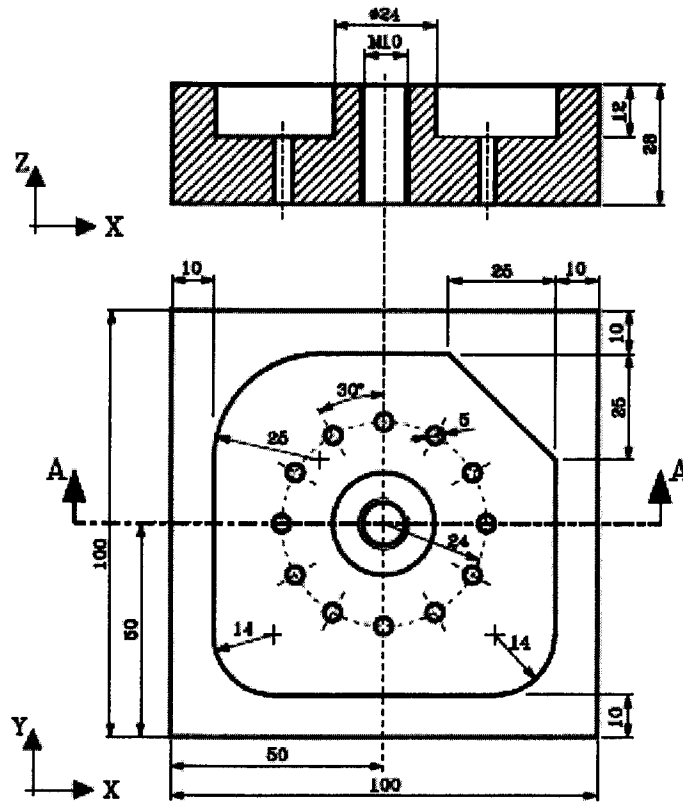


FIGURE Q3(c)

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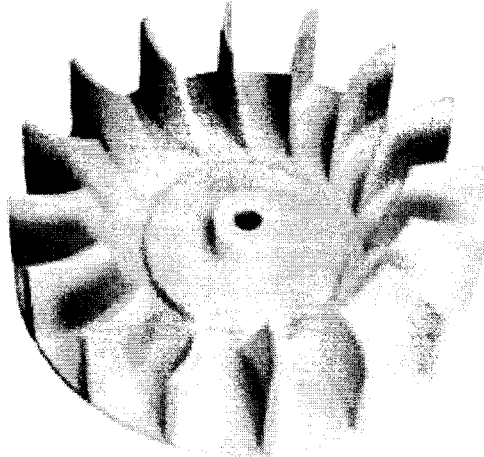


FIGURE Q5(c)