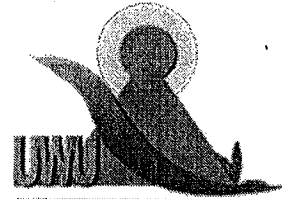


Uva Wellassa University, Sri Lanka
End Semester Examination – Sept/Oct 2012
SCT 468-2 Computer Aided Design
and Manufacturing



**Uva Wellassa
University**

Time: Two (02) hours

Total 03 Questions
Answer all questions

1.
 - I. What is sequential product development process? (20 marks)
 - II. What is simultaneous/integrated product development process? (20 marks)
 - III. Explain the needs recognition process of the product development cycle. (20 marks)
 - IV. What is conceptual design? How to select the best concepts to use with the design? (40 marks)

2.
 - I. What are the reasons to have a CAD system? (20 marks)
 - II. What is CIM? Give a model for CIM implementation. (20 marks)
 - III. Discuss about different types of feature in CAM. (20 marks)
 - IV. What is the difference between design features and manufacturing features? Explain your answer using sketches. (40marks)

3.
 - I. What is the difference between G01 and G00 in CNC machine programming? Explain with an example. (10 marks)
 - II. What are the different methods of inputting a program in to a CNC machine? (10 marks)
 - III. Write G-Code CNC program for the part shown in Fig.Q03. List of G-Codes and M-Codes are given at the end of the question paper. Thickness of the part is 7 mm. Give the material of the workpiece, diameters of the tools used, selected origin for the work. coordinate system and other assumed data. (80 marks)

G-Code List Machining Centers (Common for most machines)

(G-Codes vary from machine to machine)

G00 positioning (rapid traverse)	G54 work coordinate system 1 select
G01 linear interpolation (feed)	G55 work coordinate system 2 select
G02 circular interpolation CW	G56 work coordinate system 3 select
G03 circular interpolation CCW	G57 work coordinate system 4 select
G04 dwell	G58 work coordinate system 5 select
G07 imaginary axis designation	G59 work coordinate system 6 select
G09 exact stop check	G60 single direction positioning
G10 offset value setting	G61 exact stop check mode
G17 XY plane selection	G64 cutting mode
G18 ZX plane selection	G65 custom macro simple call
G19 YZ plane selection	G66 custom macro modal call
G20 input in inch	G67 custom macro modal call cancel
G21 input in mm	G68 coordinate system rotation ON
G22 stored stroke limit ON	G69 coordinate system rotation OFF
G23 stored stroke limit OFF	G73 peck drilling cycle
G27 reference point return check	G74 counter tapping cycle
G28 return to reference point	G76 fine boring
G29 return from reference point	G80 canned cycle cancel
G30 return to 2nd, 3rd & 4th ref. Point	G81 drilling cycle, spot boring
G31 skip cutting	G82 drilling cycle, counter boring
G33 thread cutting	G83 peck drilling cycle
G40 cutter compensation cancel	G84 tapping cycle
G41 cutter compensation left	G85,G86 boring cycle
G42 cutter compensation right	G87 back boring cycle
G43 tool length compensation + dir	G88,G89 boring cycle
G44 tool length compensation - dir	G90 absolute programming
G49 tool length compensation cancel	G91 incremental programming
G45 tool offset increase	G92 programming of absolute zero point
G46 tool offset decrease	G94 per minute feed
G47 tool offset double increase	G95 per revolution feed
G48 tool offset double decrease	G96 constant surface speed control
G50 scaling OFF	G97 constant surface speed control cancel
G51 scaling ON	G98 return to initial point in canned cycle
G52 local coordinate system setting	G99 return to Ref point in canned cycle

