



Study Programme : Bachelor of Science Honours in Engineering
Name of the Examination : Final Examination
Course Code and Title : **DMX5212 – Computer Aided Design and Manufacturing**
Academic Year : 2022/23
Date : February 09, 2024
Time : 14:00 hrs. – 17:00 hrs.
Duration : 3 hours

General instructions

- 1) Read all instructions carefully before answering the questions
 - 2) This question paper consists of 05 questions. All questions carry equal marks.
 - 3) **Answers all questions.**
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Question 01.

- a) Discuss the key benefits of using CAD/CAM in the product development lifecycle.
- b) Briefly explain three (03) functions included within the scope of manufacturing support systems.
- c) Explain the primary difference between geometry represented by a solid model and a surface model.

Question 02.

- a) Enumerate various solid-modeling techniques.
- b) Describe the basic sequential steps involved in creating a simple 3D model and the process of validating the design using CAD software.
- c) Discuss design optimization methods available in modern CAD packages for structural components.

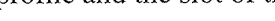
Question 03.

- a) Briefly explain the term “Rapid Prototyping”. Discuss the limitations and challenges associated with Rapid prototyping.
- b) Explain the significance of Reverse Engineering in modern manufacturing environment and provide an example of its application.
- c) Briefly explain the factors that you should consider in order to reduce manufacturing cost.

Question 04.

- a) Explain the necessity of Computer Aided Process Planning (CAPP) in manufacturing industry
- b) Briefly discuss the difference between Design for Manufacturing (DFM) and design for assembly (DFA)
- a) Enumerate the disadvantages of manual part programming over the computer assisted part programming.

Question 05.

- a) Define the term Computer Numerical Control (CNC) and explain why this technology has gain popularity in modern manufacturing industry.
- b) Write a manual part program to mill the profile and the slot of the component shown in *Figure 01*.
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Work material : 10mm mild steel
Speed : 800 r.p.m.
Feed : 200 mm/min
Sensibly assume any other data.

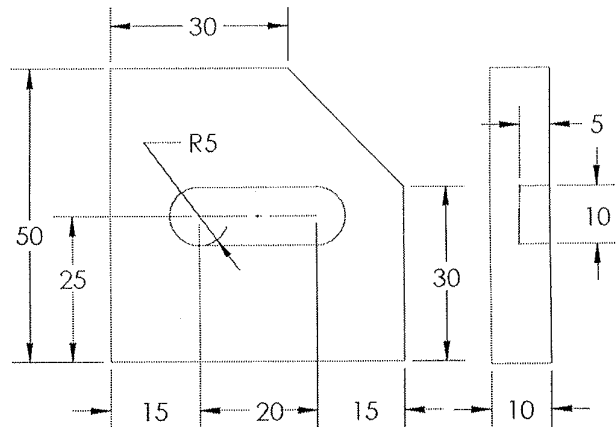


Figure 01

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