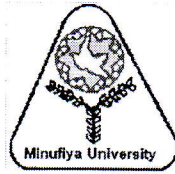


Menoufia University
Faculty of Engineering
Shebin El- Kom
Dept. Production Engineering
Final Exam.

Academic Year: 2016 – 2017

Examiner *Prof.Dr.Adel*

Abdelmaboud



Subject: NTM

Code: level 600

Date: Jun /2017

Time Allowed: 3 Hours

Total Marks :100 Marks

Question (1)

1. What is the necessity of NTM processes?
2. Explain the effect of USM parameters on MRR and surface finish in USM process.
3. Sketch a simple flow-chart to show how you can select the suitable NTM process.
4. With neat sketches, explain briefly the working principle of the ECM and LASER machines.
5. Discuss and sketch the heat affected zone in EDM what significantly reduce it?
6. What is the effect of current ,pulse on time and tool vibration on MRR surface quality in EDM

Question (2)

1. Explain how material is removed in the following NTM processes:
USM, EDM, LASER machining, ECM, WJM.
2. In details Explain How to design ECM tooling for electrolyte flow.
3. Explain self-adjusting features in ECM processes.

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4. Discuss and sketch the heat affected zone in EDM what significantly reduce it?
5. What is the effect of current ,pulse on time and tool vibration on MRR surface quality in EDM

Question (3)

1. Explain how material is removed in the following NTM processes:,USM,EDM,Laser,ECM,WJM
2. In details Explain How to design ECM tolling for electrolyte flow.
3. Sketch and briefly explain Laser beam machining.
4. Explain self-adjusting features in ECM processes.