



**NTM processes**

Level **600**  
Total Marks **100**

1<sup>st</sup> term (2017-2018)  
Time allowed 3 hours

Master degree Final Exam Jan 2018

Answer all the following Questions

QUESTION 1 (General) (35 marks)

1. Differentiate the conventional and unconventional machining processes in terms of principles. (5 marks)
2. What are the various types of energy sources used in non-traditional machining techniques? Give examples for each. (10 marks)
3. Identify the mechanism of material removal, transfer media and energy source for all NTM processes. (10 marks)
4. Why is AJM not suitable for soft materials? (5 marks)
5. What is the effect of EDM process on metal surface? (5 marks)

QUESTION 2 (15 marks)

In EDM process explain with net sketch the effect of the following parameters on its performance.

- Discharge
- Pulse interval
- Frequency
- Capacitance

QUESTION 3 (15 marks)

In USM process explain with net sketch the effect of the following parameters on its performance.

- Static load
- Amplitude
- Frequency
- Grain size
- Abrasive concentration
- Hardness ratio

Sketch overall USM magnification

QUESTION 4 (25 marks)

Choose one hybrid NTM process and explain it in details (with net sketch).

QUESTION 5 (10 marks)

Make a brief comparison between AWJM and USM (with net sketch).