

**University of Kerala**  
**V Semester B.Tech Degree Examination-Nov 2015**  
(2013 scheme)  
**13.505 Machine Tools II ( P )**  
Model Question Paper

Time:3hours

Max.Marks:100

**Part A**

Answer all questions. Each question carries 2 marks

1. What is surface broaching?
2. What are the limitations of gear moulding?
3. How can you classify thermal energy based unconventional machining methods?
4. What is the mechanism of material removal in Water jet cutting?
5. What do you mean by a hydraulic copying system?
6. What are the sources of vibrations in machine tools?
7. What are the advantages of hydraulic drives in a machine tool?
8. What is super finishing?
9. List out the applications of powder metallurgy
10. What are the methods used for the manufacturing of metal powders?

**Part B**

Answer one full question from each module. Each question carries 20 marks

**Module I**

11. Explain in detail the different types of Broaching Machines with neat sketches
12. Explain the following gear manufacturing techniques
  - a) Gear Moulding
  - b) Gear Forming
  - c) Gear Cutting
  - d) Gear hobbing

**Module II**

13. Explain in detail the principle, construction and working of any two electrical energy based unconventional machining process
14. What are Transfer Machines? Write notes on the following transfer machines
  - a) Inline Machine
  - b) Rotary Indexing Table Machine
  - c) Drum type Machine

### **Module III**

15. a) Explain the hydraulic circuit for cutting motion with the help of a neat sketch.  
b) Explain the working of a hydraulic copying system
16. Explain various techniques to eliminate vibration in a machine tool

### **Module IV**

17. Sketch and explain the following
  - a) Lapping Tool
  - b) Burnishing Tool
  - c) Super Finishing tool
  - d) Honing Tool
18. Explain in detail how metal powders are manufactured.