R09

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.Tech I - Semester Examinations April/May-2012
PRECISION ENGINEERING
(COMMON TO ADVANCED MANUFACTURING SYSTEMS, CAD/CAM,
DESIGN FOR MANUFACTURING)

Time: 3hours   Max.Marks:60

Answer any five questions
All questions carry equal marks
- - -

1.a) Explain the construction of main spindle of the machine tool to meet the accuracy requirements in CNC machine tools.
  b) Why linear and circular interpolations are having different errors explain the remedy for it.

2.a) What is tolerance zone conversion? Discuss the datum features of oddly configured system.
  b) Explain and differentiate orientation control and form control in manufacturing.

3.a) What is Grouped Datum Systems? Explain two and three mutually perpendicular grouped datum planes with an example.
  b) Explain the features of grouped datum system with spigot and recess pair and tongue.

4.a) Explain the steps involved in computation of rotational accuracy.
  b) What are the advantages and disadvantages of grouped datum system with spigot and recess, pin and hole?

5.a) What is process capability? Explain Process Capability Metrics.
  b) Explain the relationship between attainable tolerance grades and machining process. Consider any common machining process to explain.

6.a) With a neat diagram discuss about the working of any one optical measuring system used for post process measurement of dimensional features.
  b) With out effecting the functionality of the part explain manufacturing considerations in component design taking Machining Considerations.

7.a) Discuss nano physical processing of atomic bit units.
  b) Explain mechanism of metal Processing Systems for nanometer accuracies.

8.   Write short notes
  a) In process measurement
  b) Types of datum systems
  c) Electrochemical atomic bit processing.

---oo0oo---