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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Second Semester, M. Tech - Mechanical Engineering (MCIM)

Semester End Examination; June - 2016

Newer Machining Techniques

Time: 3 hrs *Max. Marks: 100*

***Note**: Answer **FIVE** full questions, selecting **ONE** full question from each unit.*

UNIT - I

1	a.	Define hard materials, hard turning and give examples of hard machined materials.	6
	b.	Discuss on cutting tools materials used in hard machining.	6
	c.	With block diagrams explain the technological chains involved in conventional production process and production process with hard turning operations.	8
2	a.	Discuss the differences between grinding and hard cutting operations.	10
	b.	Discuss on characterization of hard machining processes.	10

UNIT - II

3	a.	With a neat sketch explain the working principle of NDM with external aerosol supply and external atomizer. Also state its advantages.	10
	b.	Explain the effect of reinforcement particles on surface integrity in machining of particulate reinforced metal matrix composites.	10
4	a.	Discuss the principal ways to reduce both ecological and economical impacts of MMFs.	10
	b.	With block diagram, explain the components of the NDM system.	10

UNIT - III

5	a.	With a block diagram, compare the earlier and present processes used in mould manufacturing.	10
	b.	Explain the tool path selection using cutting force prediction in three axis case.	10
6	a.	With a block diagram, explain the proposed work planning for CAM in five axis milling.	10
	b.	Explain the tool selection using cutting force prediction in five axis case.	10

UNIT - IV

7	a.	With a schematic diagram, explain the working principle of magnetic float polishing process.	10
	b.	With a schematic diagram, explain the working principle of electro erosion dissolution wire machining process.	10
8	a.	With a schematic diagram, explain the working principle of electro chemical buffing process.	10
	b.	With a schematic diagram, explain the working principle of electro chemical discharge grinding process.	10

Contd…2

UNIT - V

9	a.	Discuss on machining effects at the micro scale.	10
	b.	Explain the classification of nanomachining.	10
10	a.	Discuss the size effects in micro machining.	8
	b.	Compare nanometric machining process with conventional machining process.	12

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