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

(An Autonomous Institution affiliated to VTU, Belgaum)

Fourth Semester, B.E. - Automobile Engineering

Semester End Examination; June - 2016

Manufacturing Technology - II

Time: 3 hrs *Max. Marks: 100*

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

UNIT - I

1	a.	With neat sketches give nomenclature of a single point cutting tool.	6
	b.	Compare Orthogonal and Oblique cutting systems.	6
	c.	What is meant by tool signature? Explain each term of a tool designated as 7-14-6-6-18-16-3.	8
2	a.	Discuss the desirable properties of cutting tool materials.	8
	b.	Explain the salient features of the following cutting tool materials : i) High speed Steel ii) Carbides	12

UNIT - II

3	a.	Explain the mechanism of flank wear and crater wear.	6
	b.	Discuss the various factors affecting tool life.	8
	c.	A mild steel bar stock was turned at 30 m/min for which the tool life was 2.1 hours. For the same material, at 25 m/min, the tool life was 5.2 hours. Find the values of constants C and n in the Taylor's tool life operation.	6
4	a.	Discuss the three modes of tool failure.	6
	b.	Explain the measurement of tool tip temperature with a sketch.	6
	c.	Describe the different types of cutting fluids used during machining.	8

UNIT - III

5	a.	Classify different types of lathe and bring out their salient features.	8
	b.	Explain the functions of the following lathe parts : i) Carriage ii) Tail stock and dead centre.	6
	c.	Estimate the machining time required to turn a part of 30 mm diameter, 200 mm long. The feed rate is 0.3 mm/rev. and the spindle speed is 300 rpm. Take an approach distance of 5 mm and end clearance of 5 mm.	6
6	a.	Differentiate between capstan and turret lathes.	6
	b.	Explain crank and slotted link mechanism used in shapers with a sketch.	8
	c.	Write a note on belt drive mechanism used in planning machines.	6

Contd…2

UNIT - IV

7	a.	Sketch and explain the construction and working of an upright drilling machine.	8
	b.	Explain the following machining operations that are performed on a drilling machines : i) Reaming ii) Counter boring iii) Spot facing.	6
	c.	A 12 mm hole is to be drilled through a 20 mm thick plate. The cutting speed is 12 m/min and the feed rate is 0.12 mm / rev. Estimate the machining time. Take the over travel plus the clearances of the tool as 5 mm.	6
8	a.	Describe the constructional features of a plain cylindrical grinding machine with a sketch.	8
	b.	Explain the following : i) Natural abrasives ii) Vitrified bonding process.	6
	c.	Discuss the factors to be considered while selecting a grinding wheel for different applications.	6

UNIT - V

9	a.	Sketch and explain the constructional features of a vertical milling machine.	8
	b.	Explain the following machining operations : i) Face milling ii) Gang milling iii) Angular milling.	6
	c.	Write a note on simple indexing method.	6
10	a.	Describe the following with suitable sketches : i) Electro-chemical machining ii) Ultrasonic machining.	16
	b.	Explain any two surface finishing processes.	4

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