Reg. No. :

## Question Paper Code: 71850

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2015.

Fourth Semester

Mechanical Engineering

ME 2252/ME 43/ME 1252 A/080120016/10122 ME 403 — MANUFACTURING TECHNOLOGY - II

(Common to Industrial Engineering, Industrial Engineering and Management, Mechanical and Automation Engineering and Mechanical Engineering (Sandwich) for Sixth Semester)

(Regulation 2008/2010)

(Common to PTME 2252/10122 ME 403 Manufacturing Technology II for B.E. (Part-Time) Third Semester Mechanical Engineering - Regulation 2009/2010)

Time: Three hours

Maximum: 100 marks

Answer ALL questions.

PART A  $(10 \times 2 = 20 \text{ marks})$ 

- State the differences between orthogonal and oblique cutting. 1.
- What are the main requirements of cutting tool materials? 2.
- Give the specification of a lathe. 3.
- How are automatic lathes classified? 4.
- What is a Reamer? 5.
- What is straddle milling? 6.
- How does wheel dressing differ from wheel truing? 7.
- What are natural and artificial abrasives? 8.
- List the advantages of CNC machines. 9.
- State any four motion statements used in APT. 10.

	(b)	(i)	Give the block diagram of a Tool and Cutter grinder and also indicate its principal parts.
			Or
14.		(ii)	Explain the honing process with suitable sketches. (8 + 8)
	(a)	(i)	How do you select a grinding wheel for a given application?
		(ii)	How mass production of small parts is done in broaching? Explain with sketches. (8 + 8)
	(b)	(i)	Illustrate the hydraulic quick return mechanism in shaper and also explain its functioning.
			Or
13.		(iii)	Discuss the operations that can be effectively performed by Planer and also indicate the tools for the operations. (4 + 4 + 8)
		(ii)	What is a Tap? How are taps classified?
	(a)	(i)	Compare up milling and down milling.
		(ii)	machine.
	(b)	(i)	resident to the second of an automate
			Or  Describe the bar feeding mechanism of capstan lathe.
		(ii)	
12.	(a)	(i)	Discuss the various types of chucks used in lathe.  [8 + 8]  [8 + 8]
			consumption.
		(ii)	In an orthogonal cutting process, the following observation of the second made uncut chip thickness = 0.25 mm; cutting force = 1100 N; feed made uncut chip thickness ratio = 0.46; rake angle = 22°; width of force = 120 N; chip thickness ratio = 0.46; rake angle = 22°; width of force = 4.5 mm and Cutting velocity = 35 m/min. Determine the cut = 4.5 mm and Cutting velocity = 35 m/min. Determine the friction angle, shear plane angle, resultant cutting force and power friction angle, shear plane angle, resultant cutting force and power friction.
	(b)	(i)	Discuss the different types of tool wear mechanisms.  In an orthogonal cutting process, the following observations were some thin thickness = 0.25 mm; cutting force = 1100 N; feed
			Or
		(ii)	The useful tool life of a HSS tool machining mild steel 26 m/min.  3 hours. Calculate the tool life when tool operates at 26 m/min.  (12 + 4)  (Take n = 0.125).
11	. (a)	(i)	Describe the Merchant's model for orthogonal call.  The useful tool life of a HSS tool machining mild steel 20 m/min is  The useful tool life of a HSS tool machining mild steel 20 m/min.  (12 + 4)
			1 1 Consequential Consequence

Describe the gear hobbing process with neat sketch.

(ii)

(8 + 8)

(ii) Explain the different types of slide ways used in CNC machine tools. (8+8)

Or

- (b) (i) With the aid of block diagram explain the steps involved in computer assisted part programming.
  - (ii) Write a part program for the part shown in Figure Q.15(b) (ii).(8 + 8)

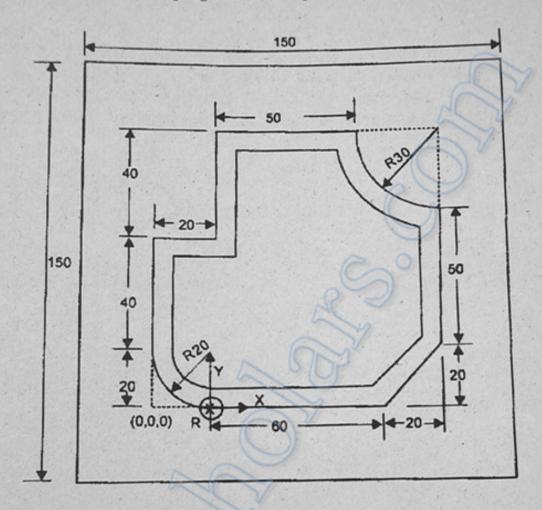


Figure Q.15(b) (ii)