S	Seat No	o.: Enrolment No	
		GUJARAT TECHNOLOGICAL UNIVERSITY	
		BE – SEMESTER –VIII– EXAMINATION – SUMMER 2015	
S	Subjec	t Code: 181903 Date: 13/05/2015	
	•	t Name: PRODUCTION TECHNOLOY	
	-	10.30am-01.00pm Total Marks: 70	
I	nstruc	tions: 1. Attempt all questions.	
		2. Make suitable assumptions wherever necessary.	
		3. Figures to the right indicate full marks.	
Q.1	(a)	How cutting tools are are classified? Name few tools of each type. What do you	07
		mean by chip with built up edge? What factors are responsible for this type of chip	
		formation?	
	(b)	Explain with neat sketch manufacturing of gear by Gear shaping using pinion type	07
		cutters. What are the advantages of this method?	
Q.2	(a)	Differentiate between Jigs and Fixture. Enlist different types of clamping devices.	07
		Explain any two with neat sketches.	
	(b)	Explain with neat sketch the importance and functions of different tool angles	07
		associated with the geometry of a single point cutting tool.	
	(b)	OR Write a short note on advance outling tool metarials along with its abareatoristics	07
	(b)	Write a short note on advance cutting tool materials along with its characteristics and applications.	U/
Q.3	(a)	In Orthogonal turning of a 50 mm diameter Mild steel bar on a lathe the following	07
Q.C	(a)	data were obtained. Rack angle = 15 degree, cutting speed=100m/min, Feed = 0.2	U1
		mm / rev., Cutting force = 180 Kg, Feed Force=60 Kg, Calculate the shear plane	
		angle, Coefficient of friction, Cutting power, the chip flow velocity and shear force,	
		if the chip thickness = 0.3 mm	
	(b)	What is transfer machine? List the essential component of a transfer machine and	07
		explain any two in detail.	
		OR	
Q.3	(a)	What are guide ways? What are the principal requirements of them? Enlist various	07
	4 \	types of guide ways used in machine tools. Explain any two in detail.	
	(b)	Define tool life? What are Crater wear and flank wear. What are the factors	07
0.4	(-)	responsible for them?	07
Q.4	(a)	Draw a Merchant's Circle Diagram and derive expressions to show relationships amongst the different forces acting on the cutting tool and different parameter	07
		involved in metal cutting.	
	(b)	It is required to make hexagonal head bolt on a capstan lathe from a hexagonal bar	07
	(6)	stock, draw tool layout for producing the required bolt on capstan lathe showing	07
		the operations oat different stations.	
		OR	
Q.4	(a)	(i) Write short note on material utilization factor for a sheet metal on a press tool	07
		using press tool die. (ii) Coated cutting punch increase the life of punch. Discuss.	
	(b)	Explain with neat sketches, How does the provision of shear angle affect the work	07
		done in shearing of sheet metal in press work? What is the effect of angles on	
_		product quality?	_
Q.5	(a)	Explain basic principle of EDM process. Also discuss the characteristics of various	07
	(1.)	materials that are used for EDM tool.	A=
	(b)	Draw neat sketch showing various components of a press working set up and	07
		explain importance of each in short.	

OR

Q.5 (a) Explain with neat sketch working principle, advantages and limitations of USM.
(b) What do you mean by MMR in unconventional machining? How this MMR is
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affected by various parameters in abrasive jet machining?
