Sanjay Ghodawat University, Kolhapur

2017-18

Established as State Private University under Govt. of Maharashtra. Act No XL, 2017

FY M. Tech	**School of Technology**	**Semester II**
MDM 510.2	**Simulation of Manufacturing Processes**	**Max Marks: 100**
May 2018	**End Semester Examination (ESE)**	**Time: 3 Hrs.**

30th May 2018

Instructions for Students: 1) Use of non-programmable calculator is allowed
10:30 Am to 1:30 pm 2) All questions are compulsory

			Marks	COs
Q1	Solve any Two			
	a)	Elaborate Direct Iteration Method.	8	CO510.2.1
	b)	The following example contains a traction force $\bar{T}$ = 448.0kPa, on the surface & dimensions are shown in the fig.1b. The perimeter of bar element is 80mm. Determine the nodal displacements, element strains, element stresses and reaction at the support.	8	CO510.2.1

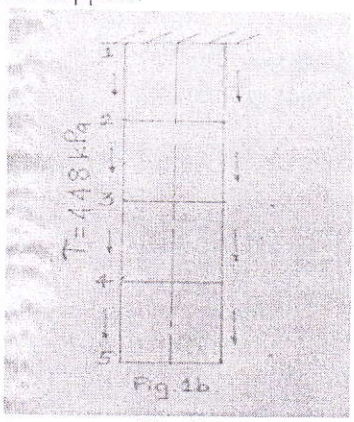


Fig.1b

	c)	Explain the concept of rezoning.	8	CO510.2.1
Q2	a)	Explain the effect of metal flow in rolling of strip & plate.	8	CO510.2.2
	b)	Explain how metal forming operation work as system.	9	CO510.2.2
Q3	a)	i) Strain Hardening and Effective stress ii) Explain the term Visco-plasticity and extremum principle.	8	CO510.2.3
	b)	Explain the concept of upper bound in estimating loads in metal forming problems. Derive the above method to get the average pressure between a pair of plain platens forging a strip without barreling.	9	CO510.2.3

Q.4	a)	For the element of an ax symmetric body rotating with a constant angular velocity ω = 100 revolution/minute as shown in fig 4a. Evaluate the approximate body force matrix. Include the weight of the material, where the weight density ρ_ω = 0.283 lb/in^3. The co-ordinates of the element (in inches) are shown in fig 4a.	8	CO510.2.4

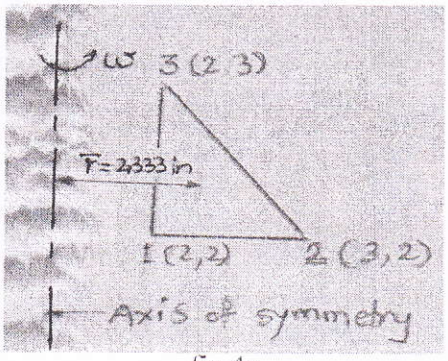


fig.4a

	b)	Explain Close Die Forging with flash	8	CO510.2.4
Q.5	a)	Write various applications of Process Design.	8	CO510.2.5
	b)	Explain method of analysis of the bar extrusion	8	CO510.2.5
Q.6	a)	What is mean by plastic anisotropy? Derive an expression for it.	8	CO510.2.6
	b)	Write a short note on : i) Defects in square cup drawing process ii)Axi symmetric Punch stretching.	10	CO510.2.6

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