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

(An Autonomous Institution affiliated to VTU, Belagavi)

Fourth Semester, B.E. - Mechanical Engineering

Semester End Examination; Sep. / Oct. - 2023

Manufacturing Process - II

Time: 3 hrs *Max. Marks: 100*

Course Outcomes

The Students will be able to:

CO1: Apply the concept of metal forming processes, types and applications.

CO2: Apply the knowledge of metal forming processes for production of engineering parts.

CO3: Analyse the various process parameters in metal forming processes.

CO4: Make use of experimental data for writing a report as an individual or as a team member to communicate effectively.

***Note**: I) **PART - A** is compulsory. **Two** marks for each question.*

*II) **PART - B**: Answer any **Two** sub questions (from a, b, c) for a Maximum of **18 marks** from each unit.*

Q. No.	Questions	Marks	BLs	COs	POs
	I : PART - A	**10**			
1 a.	What are the factors, which affects the temperature of the work pieces?	2	L1	CO1	PO1
b.	What is dynamic recovery?	2	L1	CO2	PO1
c.	Give the expression for the punch force during the formation of deep-drawn cup.	2	L1	CO2	PO1
d.	Define explosive forming.	2	L1	CO1	PO1
e.	Explain sintering process.	2	L1	CO2	PO1
	II : PART - B	**90**			
	UNIT - I	**18**			
2 a.	Provide a brief overview of the classification of metal working process.	9	L2	CO1	PO1
b.	Discuss the differences between hot forming and cold forming process.	9	L2	CO2	PO1
c.	List and explain the various parameters that effects forming process.	9	L1	CO1	PO1
	UNIT - II	**18**			
3 a.	Describe forging process and classify the different forging processes.	9	L2	CO2	PO1
b.	With neat sketch, briefly elaborate the following rolling mills: i) Tandem Mill ii) Planetary Mill	9	L2	CO2	PO1
c.	Explain the causes of rolling defects and suggest remedies to mitigate them.	9	L1	CO3	PO2

Contd…2

	UNIT - III	**18**			
4 a.	What are the principal variables, which influence the force required to cause extrusion? Explain briefly.	9	L1	CO3	PO2
b.	With a neat sketch, explain seamless tube extrusion.	9	L2	CO2	PO1
c.	Elaborate with a neat schematic drawing of a drawbench and cross section of a drawing die.	9	L1	CO3	PO2
	UNIT - IV	**18**			
5 a.	Explain how does a forming limit criterion help in controlling failure in sheet-metal forming?	9	L2	CO3	PO2
b.	Discuss springback factor with the help of neat diagram.	9	L2	CO1	PO1
c.	With a neat diagram, explain the electromagnetic forming process.	9	L2	CO3	PO2
	UNIT - V	**18**			
6 a.	Discuss the characteristic of metal power.	9	L2	CO2	PO1
b.	Discuss the different types of isostatic pressing techniques used in the manufacturing industry.	9	L2	CO3	PO2
c.	Give the advantages, disadvantages and application of power metallurgy.	9	L2	CO2	PO1

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