

TE sem VI (C-scheme) | Branch - Mechanical | Nov-2015 |
Date - 11-12-2015Q.P. Code
94345

(1/1)

(03 HOURS)

(MAX. MARKS : 80)

Note:

1. Question No. 1 is compulsory.
2. Attempt **any three** questions out of remaining **five** questions.
3. Assume suitable data wherever necessary.
4. Figures to right indicate full marks.

Q.1	Answer the following (Any four)	Marks
a.	Differentiate hot and cold extrusion process	05
b.	Explain the effect of temperature and strain rate in metal forming process.	05
c.	Define sheet metal bending process explain with sketches either V-bending or Edge Bending	05
d.	Explain various defects in forging.	05
e.	Classify metal forming processes.	05
Q.2	a. Differentiate forward and backward extrusion.	10
	b. In a cold extrusion of aluminum ($K=140$ MPa, $n=0.25$), 10 cm diameter billet to a diameter of 5 cm at 1 m/min the billet is initially 25 cm long. Determine the extrusion force and power.	10
Q.3	a. In a single pass rolling operation, a 20 mm thick plate with plate width of 100 mm, is reduced to 18 mm. The roller radius is 250 mm and rotational speed is 10 rpm. The average flow stress for the plate material is 300 MPa. Calculate the power required for the rolling operation in kW.	10
	b. Classify rolling processes. Write the advantages and limitations of it.	10
Q.4	a. In a wire drawing operation, the initial wire diameter is 7 mm and final wire diameter is 6.3 mm. the half die angle $\alpha=10^\circ$. Find the drawing stress considering $\mu=0.1$ and $k=20$ N/mm ² . Also calculate the maximum reduction possible.	10
	b. Explain tube drawing process.	10
Q.5	a. Classify forging and write advantages and limitations of open and close die forging.	10
	b. What is flash? Why is it provided in forging? Explain upsetting and fullering operations in forging.	10
Q.6	a. What is HERF processes? Write advantages, limitations, and applications of it.	10
	b. Explain magnetic pulse forming process with advantages, limitations and applications.	10

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