Code No: 135CF **R16**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, October - 2020
FABRICATION PROCESSES
(Common to CE, CEE)

Time: 2 hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
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Illustrate your answers with NEAT sketches wherever necessary.

1.a) Explain the 'sweep pattern', and mention its applications.
b) A casting of plain carbon steel is to be made using a wooden pattern. The casting is a rectangular prism with 140 × 200 mm base and 80 mm height. It has a central through hole of 70 mm dia. The pattern allowances for steel shall be considered as given below:

Machining allowance **(mm)**				***Draft allowance*** **(Angle of surfaces, in degrees)**	
Dimension, mm	**Bore**	**Surface**	**Cope side**	**External**	**Internal**
Up to 150	3	3	6	0.75^0	1^0
151 to 500	6	5.5	7		
501 to 900	7	6	9		

Calculate the dimensions of the wooden pattern which is to be used to make the casting, and draw a free hand sketch of the pattern showing the various dimensions. Shrinkage allowance may be neglected. [7+8]

2.a) List the different properties of molding sand and explain any four.
b) Explain the principles of design of risers. [7+8]

3.a) With a neat sketch, explain the process of Thermit welding. What are its applications?
b) What is Explosive welding, and in what applications it is used? [7+8]

4.a) Compare and contrast TIG welding and MIG welding based on (i) material thickness, and (ii) ease of control. When should you prefer one of these two welding techniques over the other?
b) What is 'forge welding'? When is it used? [7+8]

5.a) Describe various types of pressures used in mechanical working
b) Give a complete comparison of hot working ***vs*** cold working. [7+8]

6.a) What is coining? Compare and contrast hot and cold coining.
b) What are the different drawing processes? With a neat sketch, describe the deep drawing process. [7+8]

7.a) How are collapsible tubes of aluminium (like toothpaste tubes) manufactured? Explain.
b) Distinguish between the forces encountered in forward extrusion backward extrusion. [7+8]

8.a) What is meant by bulk deformation? Explain the different types of forging processes with sketches.
b) What do you understand by 'flash' in forging? Explain with a sketch. [7+8]

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