

Dr Ray Bahadur Sm (183) 8/12/2022
(12)

National Institute of Technology Hamirpur
Department of Material Science and Engineering
End-Term Examination Nov-Dec 2022 (Odd Semester 2022-23)

Sub: Metal Working Science and Technology
Time: 3hrs

Course Code: MS-314
Max. Marks: 50

Note: Answer all questions. Draw neat sketch wherever needed.

- Q. 1. Draw and explain forming limit diagram. Explain forming limit criterion. (5)
- Q. 2. What are the pros and cons of friction in metal forming? Also discuss the role of lubrication in metal forming at high temperature. (5)
- Q.3. Explain the followings (10)
- (a) Punching
 - (b) Piercing
 - (c) Stamping
 - (d) Powder Forging
 - (e) Extrusion
- Q. 4. Discuss the relation between flow stresses and strain rate for various temperatures (5)
- Q. 5. What are the process parameters in rolling? What are the rolling defects? (5)
- Q. 6. Discuss typical chemical composition of a hot forging die. How does the die affect the cost of the products? (5)
- Q. 7. How do the defects affect the metal working in various ways? (5)
- Q. 8. Classify the metal working processes based on their working temperature. Also explain the different phenomenon at different temperature during metal working. (5)
- Q. 9. What are different types of forging presses? Compare them with each other. (5)

-----Good Luck-----