



Subject Name: PRODUCTION TECHNOLOGY

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Year and Sem, Department: II/I, Mechanical Engineering.

Unit-I:CASTING

Important points / Definitions:

1. Steps involved in making casting
2. Advantage of casting & its applications
3. Pattern –pattern making
4. Types , materials used for patterns
5. Pattern allowances
6. Properties of moulding sands
7. Methods of melting-crucible melting and cupola operation
8. Defects in casting
9. Principles of gating – requirements –types of gates
10. Design of gating
11. System-riser –function
12. Types of riser and riser design
13. Casting process –types –sand moulding
14. Centrifugal casting
15. Die casting
16. Investment casting
17. Shell moulding
18. Solidification of casting –solidification of pure metal
19. Directional solidification

Short Questions (minimum 10 previous JNTUH Questions – Year to be mentioned)

1. What do you mean by the term ‘casting’?
2. What are the applications of casting process?
3. Write a short note on chills .
4. Explain briefly about sweep pattern and match plate pattern .
5. Write short notes on,
 - a. Cope & and drag pattern
 - b. Skeleton pattern split pattern
 - c. Gated pattern
6. Write a short note on solid pattern .
7. What are the required properties of good moulding sand ?
8. Discuss briefly the materials which are added to moulding sand to improve properties?



9. What is sand casting? List out their properties?
10. What is the function of risers in casting?

Long Questions (minimum 10 previous JNTUH Questions – Year to be mentioned)

1. Explain the steps involved in casting?
2. What are the functions of pattern?
3. What are the various tools used by a pattern maker?
4. What important considerations a pattern maker has to make before preparing a pattern?
5. Give an account of relative advantages and disadvantages of different pattern material?
6. List and explain properties of moulding sand?
7. What is a binder? Explain the various binders used?
8. Differentiate between crucible melting and cupola operation?
9. Discuss the various elements that comprise the gating system?
10. What are the functions of gating and rising?



Unit-II: WELDING

Important points / Definitions:

1. Classification
2. Types of welds and welded joints
3. Gas welding-types
4. Oxy-fuel gas cutting-standard time and cost calculations
5. Arc welding
6. Forge welding
7. Submerged arc welding
8. Resistance welding
9. Thermit welding

Short Questions (minimum 10 previous JNTUH Questions – Year to be mentioned)

1. What is welding?
2. State the necessity of welding?
3. What are the basic requirements of a good weld?
4. Write any three advantages of welding?
5. State the limitations of welding?
6. What is pressure and fusion welding?
7. What is the difference between DC and AC arc welding?
8. Mention the causes and remedies for magnetic arc blow?
9. What is filler metal? Explain its importance in welding?
10. What are the applications of AC and DC welding?

Long Questions (minimum 10 previous JNTUH Questions – Year to be mentioned)

1. How would you classify the welding process? State and explain the different criteria to classify it?
2. Describe the oxy-acetylene gas welding technique and its applications?
3. Explain oxy-acetylene gas cutting process with a neat diagram?
4. Explain different types of flames in gas welding and their applications?
5. What are the basic types of welded parts? Explain with neat sketches?
6. Explain the principle of arc welding?
7. Write the advantages of submerged arc welding?
8. Explain SMAW with neat sketches briefly?
9. Explain forge welding?
10. Write a short note on resistance spot welding?



Unit-IV:HOT AND COLD WORKING PROCESS

Important points / Definitions:

1. Hot working
2. Cold working
3. Strain hardening
4. Recovery
5. Recrystallisation and grain growth
6. Sheet metal operations:stamping
7. Blanking and piercing
8. Coining
9. Strip layout'hopy and cold spinjning-bending and deep drawing
10. Rolling fundamentals-theory of rolling
11. Types of rolling
12. Drawing and its types
13. Wire drawing and tube drawing
14. Types of presses and press tools

Short Questions (minimum 10 previous JNTUH Questions – Year to be mentioned)

1. Define the term hot and cold working?
2. List out the hot working process?
3. What are the advantages and dis advantages nof hot working ?
4. List out any three cold working processes?
5. Write a note on cold working process?
6. What are the specific merits of cold working and hot working ?
7. Explain the phenomenon of bauschinger effect?
8. What is piercing or seamless tubing?
9. Suggest the process used for coining process?
10. Explain about punch and die setup for cutting off operation?

Long Questions (minimum 10 previous JNTUH Questions – Year to be mentioned)

1. Explain hot and cold working of metals ?
2. Compare the properties of cold and hot worked parts ?
3. What are the pros and cons of cold working process?
4. Exp-liamn the selectiuon of optimum hot workling temperature?
5. What is strain hardening ?
6. What is the effect of strain rate on the formed components?
7. Explain the methods of eliminatimg work work hardening effect?
8. Laqin the phenomenon of recovery,recrystallisastion and grain growth?
9. Compasre the properties of metals while they undergo recovery,r5ecrystallization and grain growth?
10. Explain the coining operation with diagram?



Unit-V: EXTRUSION OF METALS AND FORGINGH PROCESS

Important points / Definitions:

1. Basic extrusion process and its characteristics
2. Hot extrusion and cold extrusion
3. Forward and backward extrusion
4. Impact extrusion
5. Extruding equipment
6. Tube extrusion
7. Hydrostatic extrusion
8. Forces in extrusion
9. Forging operations and principles
10. Tools
11. Forging methods
12. Smith forging
13. Drop forging
14. Roll forging
15. Forging hammer
16. Rotary forging
17. Forging defects
18. Cold forging
19. Swaging

Short Questions (minimum 10 previous JNTUH Questions – Year to be mentioned)

1. What are the advantages of extrusion process?
2. What is forward extrusion?
3. What is backward extrusion?
4. Write a note on impact extrusion?
5. Define forging?
6. Types of forging?
7. Explain about the cold forging?
8. State the defects of forging?
9. State the defects of extrusion?
10. Write brief notes on step extrusion?

Long Questions (minimum 10 previous JNTUH Questions – Year to be mentioned)

1. What are the characteristic features of extrusion process?
2. Explain the extrusion process and discuss the controlling parameters?
3. Differentiate hot and cold extrusion process?
4. Explain forward and backward extrusion process?
5. Distinguish between forward and backward extrusion process?
6. Describe the types of metal flow that occur in extrusion ?
7. What are the various equipments used in extrusion of metals?
8. How are the tubes extruded? explain with diagram?
9. Derive the forces required in forward extrusion?
10. Derive the forces required in backward extrusion process?