

Code: 9A14401

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II B.Tech II Semester (R09) Regular April/May 2012 Examinations
PRODUCTION TECHNOLOGY
(Mechatronics)

Time: 3 hours

Max Marks: 70

Answer any FIVE Questions
All Questions carry equal marks

1. (a) What are the factors which govern the selection of a proper material for pattern making?
(b) Sketch and discuss the uses and advantages of a gated pattern.
2. Describe the operation of cupola furnace for melting cast iron. With a neat sketch.
3. (a) What are the forces acting? Which transfer the metal from the metal electrode to the work in welding process?
(b) Differentiate between arc welding and gas welding processes.
4. (a) Why do properties vary widely in most welding heat affected zones?
(b) With the help of a neat sketch explain the inert gas welding process.
5. (a) Explain the principle of strain hardening.
(b) What are the different types of rolling mills?
6. (a) Explain the mechanism of blanking and What are the different stages of blanking?
(b) What is coining? What are the applications of coining process?
7. (a) Differentiate between the forward and backward extrusion process.
(b) What are the specific applications of hydrostatic extrusion?
8. What are the reasons for occurring of the defects in forging and give the suitable remedies for preventing the defects?

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1. (a) What are the criteria to be used for designing the pouring basin? Discuss briefly.
(b) What are split and multi piece patterns? What are the advantages of making them in two or more pieces?
2. What is investment casting? What are the main materials used for making the investment patterns? Write the advantages and disadvantages of investment casting.
3. (a) Explain the following welded joints: lap, butt, plug and edge.
(b) What are the parameters to be controlled in the resistance welding process?
4. (a) What is the difference between welding, brazing and soldering process?
(b) What are the reasons for various defects observed in welding?
5. (a) What are the different types of rolling mills? Explain any one of them.
(b) Differentiate between hot working and cold working.
6. (a) Derive punching force and shear force. What is the importance of forces in sheet metal operation?
(b) Differentiate between piercing and punching.
7. Write the expression for determining the force required to produce an extrusion and discuss the effect of various parameters on the extruding force.
8. (a) Differentiate between smith forging and drop forging.
(b) Explain the different forging hammers with neat sketches.

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1. (a) Name the pattern allowances which can be quantitatively specified .Write brief note on each of them.
(b) How are the ingate position and size determined?
2. (a) State the difference between short and long freezing ranges. How is range determined?
(b) List the advantages and limitations of die casting.
3. (a) Draw a diagram showing the classification of welding process.
(b) Write short notes on oxy-acetylene cutting.
4. Define flux shielded metal arc welding. Explain operation, equipment needed and applications of metal arc welding.
5. (a) Differentiate between recovery, recrystallization and grain growth.
(b) Write short notes on plastic blow and injection moulding.
6. (a) Why is it necessary to provide proper clearance between the punch and die in a shearing operation? Give reasons.
(b) Explain the following:
 - (i) Hot spinning.
 - (ii) cold spinning.
7. (a) Differentiate between cold extrusion forging and impact extrusion.
(b) Derive the forces required in extrusion process.
8. What is forging? What are the defects observed during forging?

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1. (a) Define gating ratio. Explain pressurized and unpressurized gating system.
(b) What is draft allowance? How is it provided for patterns?
2. (a) What do you understand by centrifugal casting? Explain with a neat sketch.
(b) What normally constitutes the charge in a cupola furnace?
3. Explain the process of thermit welding. Where would you recommend it? State and explain clearly the controlling parameters that influence the thermit welding.
4. (a) What are the reasons for distortions in welding?
(b) Classify the testing and inspection of welding process.
5. (a) What is the significance of recrystallisation temperature in metal working?
(b) Write short notes on
(i) Strain hardening (ii) injection moulding.
6. (a) Explain the bending operation with a neat sketch.
(b) What is drawing? Explain about different types of drawing operations.
7. Explain in brief the various methods of hot extrusion with neat sketches.
8. (a) How can you classify the forging process? Discuss.
(b) Derive the forces required in forging.
