

Code: 9A14401

B.Tech II Year II Semester (R09) Regular & Supplementary Examinations, April/May 2013

PRODUCTION TECHNOLOGY

(Mechatronics)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

1. (a) Explain skeleton pattern briefly with a neat sketch and compare it with sweep pattern.
(b) What are the function of a runner and a riser in gating systems?
2. Describe the operation of a cupola furnace for melting last iron.
3. (a) What are the different types of flames used in gas welding process?
(b) What is the principle of thermit welding?
4. Discuss in detail about the destructive and nondestructive testing of welds.
5. (a) What is injection moulding? What are its applications?
(b) Differentiate between hot working and cold working processes.
6. (a) Explain the coining operation with a neat sketch.
(b) Describe briefly the deep drawing operation with a neat sketch.
7. (a) Differentiate between forward extrusion and backward extrusion.
(b) Write a note on impact extrusion process.
8. What are the reasons for occurring of defects in forging and give the suitable remedies for preventing defects?

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1. (a) What are pattern allowances? Explain each in detail with a neat sketch.
(b) Define gating ratio. What is its significance?
2. What is meant by crucible furnace? What are their types? Explain any two in detail with a neat sketch.
3. (a) Describe the functioning of an arc welding machine with a neat sketch.
(b) Mention the various types of gases commonly used in gas welding.
4. (a) Distinguish between soldering and brazing.
(b) Discuss the sequence of operations in friction welding.
5. (a) What do you mean by recrystallization temperature and grain growth in hot working?
(b) Discuss briefly the factors affecting the rolling process.
6. Explain the following with neat sketches.
(a) Wire drawing.
(b) Tube drawing.
7. (a) Explain the cold extrusion process with a neat sketch.
(b) Write the applications of extrusion.
8. Explain the sequence of operations involved in upset forging. Write down the applications of forging.

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1. Describe the complete casting process with neat sketches. Clearly explain all the steps involved in it.
2. (a) Explain the centrifugal casting with a neat sketch and state its applications.
(b) What is the need of special casting process? Explain any one.
3. Stating the principle of flame cutting described the method of oxygen cutting and differentiates with respect to arc cutting.
4. (a) Compare laser beam welding with friction welding.
(b) What is meant by welding defect? Explain any two.
5. Describe the forces and geometrical relationships in rolling and explain the effect of variables on rolling load and process.
6. (a) Explain the bending operation with a neat sketch.
(b) Derive an expression for bending force.
7. Classify the extrusion processes.
8. (a) Differentiate between smith forging and drop forging.
(b) Derive the forces required in forging.

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1. (a) Give an account of different pattern materials.
(b) What are the advantages, disadvantages and limitations of casting process?
2. Compare investment casting and shell moulding from the point of process, product and application.
3. (a) Explain the resistance welding process with a neat sketch.
(b) Discuss about the filler and flux materials used in arc welding process.
4. Explain the TIG and MIG system of welding. Give the applications of each.
5. (a) What is strain hardening?
(b) How rolling mills are classified? Explain with their application.
6. (a) Differentiate between coining and embossing.
(b) With a neat diagram explain the process of spinning.
7. Explain the hydro static extrusion process with a neat sketch and mention its advantages.
8. (a) Explain the different forging tools used for forging operations.
(b) Write the advantages and disadvantages of forging.
