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Question Paper Code : 21296

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2023.

Third/Fifth Semester

Mechanical Engineering

ME 3393 – MANUFACTURING PROCESSES

(Common to : Aeronautical Engineering/Aerospace Engineering/Automobile
Engineering/Industrial Engineering/Industrial Engineering and
Management/Mechanical Engineering – (Sandwich) and Safety and Fire
Engineering)

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. For what types of products might a loose piece pattern be required? Give example.
2. What do you understand by "Inoculation of molten cast iron"?
3. What are the components of total electrical resistance converted to heat in resistance welding?
4. Why depth to width ratio is so great in Electron beam welding?
5. What are the factors, which influences the working temperature of warm working?
6. What do you meant by Spring back effect?
7. Draw forming limit diagram for sheet metal.
8. Why is Electro hydraulic forming often preferred over explosive forming?
9. Make a note on Plastic Film blowing.
10. What is the meant by radical polymerization?

PART B — (5 × 13 = 65 marks)

11. (a) Explain the principle, operation, advantages, disadvantages and application of CO₂ moulding.

Or

- (b) Explain working principle and advantages of high frequency coreless induction furnace with sketch.

12. (a) Elucidate with neat sketch principle and Process of Thermit welding.

Or

- (b) Explain Diffusion bonding. Also explain three basic techniques incorporated in diffusion bonding.

13. (a) Classify the various rolling mills. Sketch and explain the principle involving in each rolling mill.

Or

- (b) Elucidate with an example Forging difficulty as a function of part geometry.

14. (a) What is Stretch Forming? Discuss on advantages and limitations of stretch forming operations.

Or

- (b) Discuss on advantages and limitations with facts offered by Electro Magentic Forming (Magnetic Pulse Forming) process over other forming techniques.

15. (a) What is Thermoforming and How Can the Process be Used in Product Manufacturing?

Or

- (b) Explain how plastics product are manufactured using rotational moulding.

PART C — (1 × 15 = 15 marks)

16. (a) Identify the following casting defects. Write their causes with remedies.



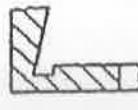
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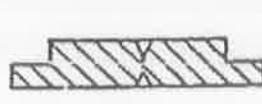
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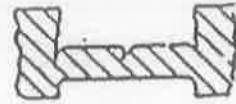
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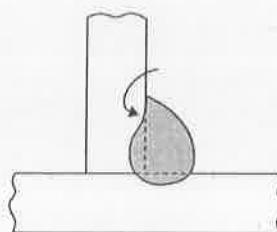
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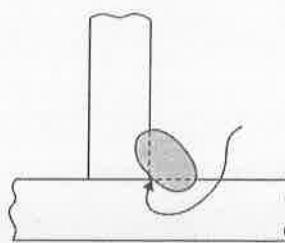
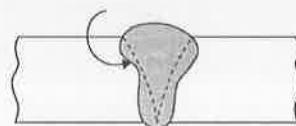
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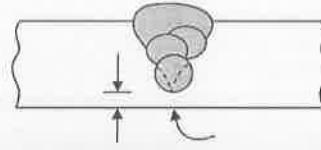
- (b) Identify the following welding defects. Write their causes with remedies.



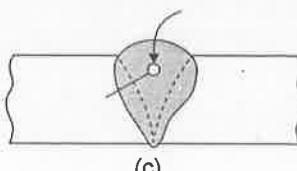
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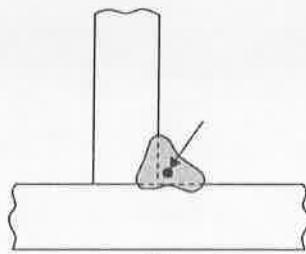
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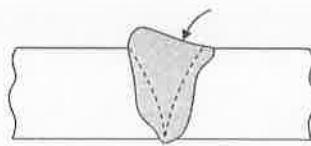
Root-face



(c)



(d)



(e)