

- Q.17 What is solid-state welding? Explain with neat sketch.
- Q.18 Explain electric arc furnace for making steel with neat sketch.
- Q.19 Explain how dissimilar metals can be welded with stainless steel?
- Q.20 What are the recommended procedures for storage of stainless steel?
- Q.21 What are the various applications of stainless steel? Give two examples.
- Q.22 Explain gas tungsten arc welding with neat sketch.

#### SECTION-D

**Note:** Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

- Q.23 Explain objectives and types of heat Treatment in brief.
- Q.24 Explain :
- Magnetic Particle Testing
  - Dye Penetrate Test
- Q.25 Explain in detail microbiologically induced corrosion and how it can be controlled.

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#### 5th Sem / Mechanical Engg. Mechanical ( Tool & Die)

#### Subject : Stainless Steel Technology

Time : 3 Hrs.

M.M. : 60

#### SECTION-A

**Note:** Multiple choice questions. All questions are compulsory (6x1=6)

- Q.1 What is the primary role of carbon in stainless steel?
- Increases strength
  - Improves corrosion resistance
  - Stabilizes the austenitic structure
  - Enhances machinability
- Q.2 Which surface finishing technique is commonly used to enhance the appearance of stainless steel?
- Polishing
  - Pickling
  - Sandblasting
  - All of the above

- Q.3 What is the primary purpose of solution annealing stainless steel ?
- a) To improve ductility
  - b) To increase hardness
  - c) To homogenize the microstructure
  - d) To reduce residual stresses
- Q.4 Which phase transformation occurs during the annealing of stainless steel?
- a) Recovery                      b) Recrystallization
  - c) Grain growth                d) All of the above
- Q.5 What is the primary concern regarding the impact toughness of stainless steel at low temperatures?
- a) Ductile-to-brittle transition
  - b) Decreased yield strength
  - c) Increased creep rate
  - d) Loss of corrosion resistance
- Q.6 What is the primary element responsible for stainless steel's resistance?
- a) Iron                              b) Carbon
  - c) Chromium                      d) Nickel

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## SECTION-B

**Note:** Objective/ Completion type questions. All questions are compulsory. (6x1=6)

- Q.7 What is the primary technique used to shape stainless steel into various products?
- Q.8 Explain hot rolling process in brief?
- Q.9 What is the most common type of localized corrosion in stainless steel?
- Q.10 In which industry in stainless steel widely used due to its excellent corrosion resistance?
- Q.11 What are the units of surface roughness?
- Q.12 What is precipitation hardening?

## SECTION-C

**Note:** Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

- Q.13 Explain the effect of alloying element on properties of stainless steel.
- Q.14 What is vacuum oxygen decarburization?
- Q.15 What are the various issues faced during fabrication of stainless steel
- Q.16 Define fatigue and how it occurs in stainless steel.

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