

**Chettinad**

College of Engineering &amp; Technology

Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai.

**Department Mechanical Engineering****ME8491- Engineering Metallurgy****Unit II - MCQ Bank**

1. Which of the following factors does not influence the variety and quality of metal?

- A. Rate of heating and cooling
- B. Quenching medium
- C. Furnace
- D. **Grain size**

Answer: (D)

2. How does the rate of cooling affect the hardness of the metal?

- A. Slow cooling, hard material
- B. **Slow cooling, soft material**
- C. Rapid cooling, soft material
- D. No effective change

Answer: (B)

3. Which of the following is not a stage of annealing?

- A. Heating
- B. Soaking
- C. **Tempering**
- D. Quenching

Answer: (C)

4. What happens when internal residual stresses are not removed?

- A. Coarse structure
- B. Reduction of grain size
- C. **Distortion**
- D. Recrystallization

Answer: (C)

5. Removal of internal residual stresses at low temperatures is known as \_\_\_\_\_

- A. Recrystallization
- B. **Recovery**
- C. Morphology
- D. Phase transformation

Answer: (B)

6. How is cooling of the material done is normalising process?

- A. Furnace
- B. Cooling tower
- C. **Still air**
- D. Liquid chamber

Answer: (C)

7. Normalising is best used for is what kind of materials?

- A. Steel castings
- B. Steel wires
- C. High carbon steels
- D. **Low and medium carbon steels**

Answer: (D)

8. Which among the following media of quenching the slowest?

- A. Caustic soda
- B. Sodium chloride
- C. Mineral oil
- D. **Air**

Answer: (D)

9. Which quenching medium is used for quenching of carbon and low alloy steels?

- A. Vegetable oil
- B. **Water**
- C. Air
- D. Animal oil

Answer: (B)

10. Which stage of quenching is the slowest?

- A. Vapour-Jacket
- B. Vapour-Transport cooling
- C. **Liquid-Cooling**
- D. They are all equally slow

Answer: (C)

11. The CCT or the TTT diagrams are used for \_\_\_\_\_
- A. **One steel of specific composition**
  - B. A family of various steels
  - C. Alloy system of various compositions
  - D. Combination of all alloys and steels with various compositions

Answer: (A)

12. What does CCT diagram stand for?
- A. Constant-critical-temperature
  - B. Constant-cooling-temperature
  - C. **Continuous-cooling-transformation**
  - D. Continuous-creep-transformation

Answer: (C)

13. \_\_\_\_\_ is used to predict quenching reactions in steels.
- A. **Isothermal transformation diagram**
  - B. Iron-iron carbide equilibrium diagram
  - C. Continuous cooling transformation diagram
  - D. Logarithm scale

Answer: (A)

14. The first step in constructing a TTT diagram involves \_\_\_\_\_ the sample.
- A. Annealing
  - B. Normalising
  - C. Quenching
  - D. **Austenising**

Answer: (D)

15. Hot-quenching of eutectoid steels in austenitic condition results in formation of \_\_\_\_\_
- A. Pearlite
  - B. **Bainite**
  - C. Ferrite
  - D. Cementite

Answer: (B)

16. Bainite in iron-carbon alloys has a \_\_\_\_\_ structure.
- A. Dendritic
  - B. **Non-lamellar**
  - C. Linear
  - D. Hexahedral

Answer: (B)

17. Which of the following factors do not affect the critical cooling rate?

- A. Chemical composition
- B. Hardening temperature
- C. **Number or nature of grains**
- D. Purity of steel

Answer: (C)

18. For hardening of steel by quenching, the steel is cooled in \_\_\_\_\_

- A. Furnace
- B. Still air
- C. **Oil bath**
- D. Cooling tower

Answer: (C)

19. Phase transformation during hardening transforms \_\_\_\_\_

- A. BCC to FCC
- B. **FCC to BCT**
- C. BCT to HCP
- D. FCC to HCP

Answer: (B)

20. The hardening process is carried out on \_\_\_\_\_ steel.

- A. No carbon
- B. Low carbon
- C. Medium carbon
- D. **High carbon**

Answer: (D)

21. How does the rate of cooling affect the hardness of steel?

- A. Faster cooling results in low hardness
- B. Slow cooling results in high hardness
- C. **Fast cooling results in high hardness**
- D. No change is found

Answer: (C)

22. Hardenability of a material can be measured using \_\_\_\_\_ test.

- A. **Jominy end-quench**
- B. Charpy
- C. Rockwell
- D. Izod

Answer: (A)

23. Martempering is otherwise known as \_\_\_\_\_

- A. Interrupted quenching
- B. **Marquenching**
- C. Austempering
- D. Isothermal quenching

Answer: (B)

24. It is necessary to carry out \_\_\_\_\_ after martempering.

- A. Refining
- B. **Tempering**
- C. Surface hardening
- D. Cyaniding

Answer: (B)

25. The treatment of steel to get a stronger casing while maintaining a soft core is called \_\_\_\_\_

- A. **Surface hardening**
- B. Tempering
- C. Sintering
- D. Surface lining

Answer: (A)