



**NATIONAL INSTITUTE OF TECHNICAL TEACHERS
TRAINING AND RESEARCH**
(DEEMED TO BE UNIVERSITY UNDER DISTINCT CATEGORY)
CHANDIGARH

Ph.D. Entrance Examination - January 2025

Subject / Branch / Department :	MECHANICAL ENGINEERING
Roll No. :	
Candidate Name :	
Date of Examination :	

Maximum Marks: 25 (There is no negative marking)

- Notes:** (a) Only one option to be tick-marked out of the four options given as answer
(b) The Candidate must put his/her signature with date at the bottom of each page
(c) For any rough work, please use ONLY back-sides of pages which are left blank

1. The dendrite structure is observed while solidification for
 - A) Low cooling rate
 - B) Zero cooling rate
 - C) High cooling rate
 - D) None of above
2. The principal plane carries
 - A) Maximum shear stress
 - B) No shear stresses
 - C) No normal stress
 - D) None of above
3. Tool chatter may be controlled by
 - A) Tool tightening
 - B) Workpiece material selection
 - C) Process parameter optimization
 - D) All of the above
4. What is the range of carbon content in steel
 - A) 0-0.8%
 - B) 0-2%
 - C) 0-4.4%
 - D) 0-6.67%

Ph.D. Entrance Exam – January 2025, NITTTR Chandigarh

5. Resistance welding cannot be used for
 - A) Ferrous materials
 - B) Non-Ferrous materials
 - C) Dielectrics
 - D) Any of the above

6. The procedure adopted in the Gauss-Jordan method in solving linear simultaneous equation is
 - A) It is required to assume initial approximate value of variables
 - B) It reduces the given system of equation to diagonal matrix
 - C) It reduces the given system of equation to equivalent triangular system
 - D) None of above

7. Resilience of material is important when it is subjected to
 - A) Combined loading
 - B) Fatigue
 - C) Thermal stresses
 - D) Shock loading

8. Which kind of resistance is experienced in upset butt welding?
 - A) Electric resistance
 - B) Magnetic resistance
 - C) Thermal resistance
 - D) Air resistance

9. Arc stability is better with
 - A) DC welding
 - B) AC welding
 - C) Both AC and DC welding
 - D) Rectified supply

10. Gases used in TIG welding are
 - A) Argon and helium
 - B) Argon and neon
 - C) Ozone and neon
 - D) None of the above

11. Grey iron is usually welded by
 - A) Gas welding
 - B) MIG welding
 - C) TIG welding
 - D) Arc welding

12. Mechanical step-less regulation device is also known as
 - A) Variators
 - B) Regulators
 - C) Turbulator
 - D) None of the above

13. The angle between the face and flank of the single-point cutting tool is known as
- A) Rake
 - B) Clearance
 - C) Lip
 - D) Point
14. To obtain a surface finish in the range of $0.75 \mu\text{m}$ to $1.25 \mu\text{m}$, the operation used is called
- A) Grinding
 - B) Lapping
 - C) Buffing
 - D) Honing
15. For arc welding, DC supply is produced by
- A) Welding rod
 - B) Motor
 - C) Substrate
 - D) Motor-generated set
16. Which of the following equipment is generally used for arc welding?
- A) Single phase alternator
 - B) Two- phase alternator
 - C) Three- phase alternator
 - D) Transformer
17. Which of the following is the full form of CIPMS
- A) Computer-integrated production management system
 - B) Computer-induced planning for management system
 - C) Computer-integrated process for machining science
 - D) None of the above
18. Which of the following is a component of TQM
- A) Standardization
 - B) Process control
 - C) Training and Quality
 - D) All of the above
19. Engg. stress is the same as the
- A) True stress
 - B) Conventional stress
 - C) Av. stress
 - D) Final stress
20. The neutral axis of the beam is the axis at which
- A) The shear force is zero
 - B) MOI is zero
 - C) Bending stress is zero
 - D) Bending stress is max

21. Kelvin's plank statement shows the impossible of which type of machines.
- A) Perpetual motion machine 1
 - B) Perpetual motion machine 2
 - C) Perpetual motion machine 3
 - D) None of the above
22. The refrigerator and heat pump work on which principle
- A) First law of thermodynamics
 - B) Second law of thermodynamics
 - C) Third law of thermodynamics
 - D) Zeroth law of thermodynamics
23. The temperature at which the volume of gas becomes zero is called
- A) Absolute scale of temperature
 - B) Absolute zero temperature
 - C) Absolute temperature
 - D) None of the above
24. Numerical control
- A) applies only to milling machines
 - B) is a method for producing the exact number of parts per hour
 - C) is a method for controlling through a set of instructions
 - D) none of the mentioned
25. Which of the following is not the advantage of CNC machines?
- A) Improved strength of the components
 - B) Reduced scrap rate
 - C) Higher flexibility
 - D) Improved quality

ANSWER- KEY

Mechanical

1.	C
2.	B
3.	A
4.	B
5.	C
6.	B
7.	D
8.	A
9.	A
10.	A
11.	A
12.	A
13.	C
14.	A
15.	D
16.	D
17.	A
18.	D
19.	B
20.	C
21.	B
22.	B
23.	B
24.	C
25.	A

18/10