

# Olympiad Questionnaire

## Multiple Choice Questions

- The SI unit of force is:  
A) Newton      B) Joule  
C) Pascal      D) Watt
- Which of the following is a fundamental quantity?  
A) Speed      B) Mass  
C) Force      D) Pressure
- The least count of a vernier calliper is:  
A) 0.01 cm      B) 0.1 cm  
C) 1 cm      D) 0.001 cm
- The correct relation is:  
A) 1 m = 10 cm      B) 1 km = 1000 m  
C) 1 g = 100 kg      D) 1 mm = 10 cm
- The area under velocity-time graph represents:  
A) Acceleration      B) Distance  
C) Displacement      D) Speed
- Acceleration due to gravity on Earth is approximately:  
A)  $10 \text{ m/s}^2$       B)  $9.8 \text{ m/s}^2$   
C)  $8.9 \text{ m/s}^2$       D)  $12 \text{ m/s}^2$
- A body moves in a circle with constant speed. The acceleration is:  
A) Zero      B) Towards the center  
C) Away from the center      D) Tangential
- The slope of a displacement-time graph gives:  
A) Acceleration      B) Momentum

C) Force                      D) Velocity

9. Newton's First Law is also known as:

A) Law of acceleration      B) Law of inertia  
C) Law of gravitation      D) Law of action-reaction

10. The atomic number of oxygen is:

A) 6              B) 7  
C) 8              D) 9

11. Work done is zero when:

A) Force is perpendicular to displacement  
B) Force is parallel to displacement  
C) Force is opposite to displacement  
D) Both B and C

12. The SI unit of energy is:

A) Joule                      B) Watt  
C) Newton                  D) Pascal

13. Avogadro's number is:

A)  $6.022 \times 10^{22}$       B)  $6.022 \times 10^{23}$   
C)  $6.022 \times 10^{24}$       D)  $6.022 \times 10^{21}$

14. Kinetic energy depends on:

A) Mass and acceleration      B) Force and distance  
C) Mass and velocity              D) Only mass

15. The center of mass of a uniform rod lies:

A) At one end                      B) At the midpoint  
C) At one-fourth length      D) At three-fourth length

16. of inertia depends on:

A) Mass only                      B) Distribution of mass  
C) Shape only                      D) Density

17. The unit of angular velocity is:

- A) rad/s      B) m/s
- C) N/m      D) rad

18. Which property of solid-state materials is most crucial for the durability of car brake pads?

- A) Electrical conductivity      B) Hardness
- C) Ductility      D) Transparency

19. Which company pioneered the use of assembly lines in car manufacturing?

- A) Toyota      B) General Motors
- C) Honda      D) Ford

20. The concept of “Just-in-Time” manufacturing was introduced by:

- A) Ford      B) Toyota
- C) BMW      D) Hyundai

21. The process in which a substance gains oxygen is called:

- A) Oxidation      B) Reduction
- C) Hydrolysis      D) Neutralization

22. The coolants used in car radiators are often solutions of ethylene glycol in water. What is the main function of this solution?

- A) Increase boiling point and decrease freezing point      B) Increase viscosity
- C) Act as a fuel      D) Reduce engine noise

23. The main purpose of the engine assembly shop is:

- A) Painting      B) Assembling engine components
- C) Welding      D) Testing

24. The main function of the testing line is to:

- A) Paint the car      B) Weld components
- C) Assemble parts      D) Test the assembled vehicle for defects

25. The main advantage of using robots in welding is:

- A) Higher labor cost      B) Consistent weld quality
- C) Increased errors      D) Reduced speed

26. The main challenge in implementing Industry 4.0 in manufacturing is:

- A) High speed      B) Integration of digital technologies
- C) Low cost      D) Simple processes

27. The main purpose of Six Sigma in manufacturing is:

- A) Increase defects      B) Reduce defects and improve quality
- C) Increase cost      D) Reduce speed

28. The main function of the supply chain in manufacturing is to:

- A) Supply raw materials and components      B) Paint the car
- C) Assemble the engine      D) Test the vehicle

29. Which coordination compound is used in automobile exhaust systems to convert toxic gases into less harmful substances?

- A) Iron (III) chloride      B) Platinum complexes
- C) Sodium chloride      D) Copper sulphate

30. What is the main advantage of computer-aided design (CAD) in manufacturing?

- A) Manual drawing      B) Faster and more accurate designs
- C) Increased errors      D) Reduced efficiency

## Answer Key

1. A	2. B	3. A	4. B
5. C	6. B	7. B	8. D
9. B	10. C	11. A	12. A
13. B	14. C	15. B	16. B
17. A	18. B	19. D	20. B
21. A	22. A	23. B	24. D
25. B	26. B	27. A	28. B
29. B	30. B		