

Scientific Foundations of Drama and Theatre

Theatre Science · Answer Key · 25 Questions

1. Which organ is primarily responsible for the production of the human voice used in theatrical projection?

- A) Larynx**
- B) Heart
- C) Liver
- D) Kidney

2. In theatre architecture, what is the primary scientific phenomenon used to distribute sound evenly to the audience?

- A) Refraction
- B) Acoustic reflection**
- C) Magnetic resonance
- D) Gravitational pull

3. Which ancient civilization developed the use of stone amphitheaters designed to optimize natural sound amplification?

- A) Ancient Greeks**
- B) Ancient Egyptians
- C) Ancient Persians
- D) Ancient Chinese

4. What is the term for the visual phenomenon where a performer's movement appears continuous rather than flickering?

- A) Persistence of vision**
- B) Doppler effect
- C) Quantum entanglement
- D) Thermal expansion

5. The study of how sound behaves in an enclosed space like a theatre is known as what?

- A) Acoustics**
- B) Optics
- C) Mechanics
- D) Biology

6. Which type of light source, historically used in theatres, produces light by heating a cylinder of calcium oxide?

A) Limelight

B) LED

C) Fluorescent

D) Neon

7. What physical property of light allows theatre lighting designers to use color filters (gels)?

A) Wavelength transmission

B) Conduction

C) Surface tension

D) Inertia

8. Human performers use which system to regulate the precise muscular movements required for complex choreography?

A) Central Nervous System

B) Digestive System

C) Excretory System

D) Endocrine System

9. What is the main function of a theatre proscenium arch in relation to stage mechanics?

A) It frames the stage and hides machinery

B) It prevents floor collapse

C) It regulates oxygen levels

D) It generates electricity

10. Which scientific tool is used in modern theatre to precisely control the intensity of lighting fixtures?

A) Dimmer switch

B) Thermometer

C) Barometer

D) Hydrometer

11. What is the primary material used in historical 'theatre makeup' to adhere pigments to the skin?

A) Oil or wax base

B) Liquid nitrogen

C) Sulfuric acid

D) Hydrochloric acid

12. Which acoustic element is added to theatre walls to minimize sound echoes (reverberation)?

A) Sound-absorbing materials

- B) Mirrored surfaces
- C) Steel plates
- D) Glass sheets

13. The speed of sound in air, which impacts how quickly an audience hears a performer, is approximately how many meters per second?

A) 343

- B) 10
- C) 5000
- D) 1

14. What biological state is induced in an audience when they observe highly emotional theatrical performances?

A) Empathy (mirror neuron response)

- B) Photosynthesis
- C) Cellular mitosis
- D) Osmosis

15. Which gas was historically pumped into early gas-lit theatres, posing a significant fire risk?

A) Coal gas

- B) Helium
- C) Argon
- D) Neon

16. In theatre, what term describes the physical weight and balance of stage scenery?

A) Center of gravity

- B) Molecular density
- C) Atomic mass
- D) Thermal conductivity

17. What is the scientific term for the intensity of sound measured in theatres?

A) Decibels

- B) Kelvins
- C) Newtons
- D) Joules

18. Which anatomical structure allows actors to expand their lungs for sustained vocal projection?

A) Diaphragm

- B) Appendix
- C) Gallbladder
- D) Spleen

19. The 'fourth wall' in theatre is a metaphorical concept; which science studies the physical barriers between people?

A) Proxemics

- B) Astronomy
- C) Geology
- D) Chemistry

20. What chemical process occurs when stage 'fog' (from dry ice) is created in a theatre?

A) Sublimation

- B) Combustion
- C) Oxidation
- D) Distillation

21. Which unit of measurement is used to determine the brightness of stage lights?

A) Lumens

- B) Celsius
- C) Grams
- D) Metres

22. The structure of a theatre stage is often built on a rake; what does this mean scientifically?

A) It is slanted for better visibility

- B) It is made of magnetic iron
- C) It is cooled by liquid gas
- D) It rotates at high speeds

23. What is the study of human movement in theatre, specifically regarding energy and space?

A) Kinesiology

- B) Botany
- C) Petrology
- D) Zoology

24. When an actor uses a 'mask', what sensory information is limited for the performer?

A) Peripheral vision

B) Auditory capacity

C) Olfactory sense

D) Tactile feedback

25. Which simple machine is used in theatre fly systems to lift heavy scenery with less force?

A) Pulley

B) Lever

C) Inclined plane

D) Wedge