

UNIT I – MECHANICAL SERVICES

PART-A

1. Which mechanical service is primarily used for vertical transportation in buildings

- A) Conveyor
- B) Lift
- C) Escalator
- D) Ramp

Answer: B) Lift

2. The enclosure through which a lift travels is called:

- A) Machine Room
- B) Lift Well
- C) Lift Pit
- D) Lift Lobby

Answer: B) Lift Well

3. Escalators are mainly used for:

- A) Horizontal transport
- B) Vertical transport of people
- C) Transporting goods only
- D) Water supply

Answer: B) Vertical transport of people

4. Which type of lift is commonly used in residential buildings?

- A) Passenger Lift
- B) Goods Lift
- C) Dumbwaiter

D) Hospital Lift

Answer: A) Passenger Lift

5. Goods lifts are specially designed for:

A) Patients

B) Heavy materials

C) Office staff

D) Children

Answer: B) Heavy materials

6. A lift pit is provided:

A) Above the lift

B) Below the lowest landing

C) Inside machine room

D) On the terrace

Answer: B) Below the lowest landing

7. Which component supports the lift car movement?

A) Guide Rails

B) Pipes

C) Fans

D) Diffusers

Answer: A) Guide Rails

8. Escalators are most suitable for:

A) Warehouses

B) Shopping malls

C) Water tanks

D) Factories

Answer: B) Shopping malls

9. Which lift is specially designed for hospitals?

A) Capsule Lift

B) Hospital Lift

C) Service Lift

D) Goods Lift

Answer: B) Hospital Lift

10. The machine room of a conventional lift is usually located:

A) Basement

B) Terrace/Top floor

C) Ground floor

D) Lift Lobby

Answer: B) Terrace/Top floor

11. Conveyors are mainly used for:

A) Passenger movement

B) Material handling

- C) Ventilation
- D) Fire protection

Answer: B) Material handling

12. Which lift is suitable for transporting food in hotels?

- A) Passenger Lift
- B) Goods Lift
- C) Dumbwaiter
- D) Capsule Lift

Answer: C) Dumbwaiter

13. Lift doors generally operate:

- A) Manually only
- B) Automatically
- C) By rope
- D) By pulley only

Answer: B) Automatically

14. Escalators operate continuously using:

- A) Hydraulic system
- B) Rotating chain mechanism

- C) Water pressure
- D) Pneumatic system

Answer: B) Rotating chain mechanism

15. Which mechanical service improves accessibility in multi-storey buildings?

- A) Lift
- B) Septic Tank
- C) Rainwater Pipe
- D) Manhole

Answer: A) Lift

16. Which lift type is best suited for high-rise buildings?

- A) Hydraulic Lift
- B) Traction Lift
- C) Dumbwaiter
- D) Goods Lift

Answer: B) Traction Lift

17. Hydraulic lifts are commonly used in:

- A) Low-rise buildings
- B) High-rise towers
- C) Bridges
- D) Stadiums

Answer: A) Low-rise buildings

18. Which factor determines the size of a lift?

- A) Building colour
- B) Number of passengers
- C) Roof design
- D) Flooring type

Answer: B) Number of passengers

19. The primary purpose of guide rails is to:

- A) Decorate the lift
- B) Guide the lift car safely
- C) Reduce lighting
- D) Store cables

Answer: B) Guide the lift car safely

20. Which lift is commonly installed in hotels for aesthetic appearance?

- A) Goods Lift
- B) Capsule Lift
- C) Service Lift
- D) Freight Lift

Answer: B) Capsule Lift

21. If a shopping mall expects heavy pedestrian traffic, the best vertical transportation system is:

- A) Passenger Lift
- B) Escalator
- C) Ramp
- D) Conveyor

Answer: B) Escalator

22. In a hospital, stretcher movement requires:

- A) Dumbwaiter
- B) Hospital Lift
- C) Capsule Lift
- D) Service Lift

Answer: B) Hospital Lift

23. Which mechanical service reduces waiting time during peak hours?

- A) Escalator
- B) Lift Pit
- C) Guide Rail
- D) Conveyor Belt

Answer: A) Escalator

24. The lift well must be:

- A) Waterproof only
- B) Fire-resistant and structurally safe
- C) Decorative
- D) Transparent

Answer: B) Fire-resistant and structurally safe

25. Conveyor systems are mostly used in:

- A) Residential houses
- B) Industries and airports
- C) Schools
- D) Hospitals

Answer: B) Industries and airports

26. Which lift component ensures passenger safety during emergencies?

- A) Counterweight
- B) Safety Brake
- C) Guide Rail
- D) Machine Room

Answer: B) Safety Brake

27. Why is adequate space required around a lift well?

- A) Decoration
- B) Maintenance and safe operation
- C) Painting
- D) Ventilation only

Answer: B) Maintenance and safe operation

28. Escalators are generally inclined at approximately:

- A) 15°
- B) 30°
- C) 60°
- D) 90°

Answer: B) 30°

29. Which is an advantage of traction lifts over hydraulic lifts?

- A) Lower speed
- B) Suitable for taller buildings
- C) Requires more oil
- D) No electricity required

Answer: B) Suitable for taller buildings

30. An architect should provide proper lift and escalator spaces mainly to:

- A) Improve building appearance only
- B) Ensure safe and efficient movement of people
- C) Increase construction cost
- D) Reduce room sizes

Answer: B) Ensure safe and efficient movement of people

PART-B

1. Explain the classification of lifts with neat sketches. Discuss their applications in residential, commercial, hospital and industrial buildings.
2. Describe the components of a lift with a neat labelled diagram and explain the function of each component.
3. Explain the planning and design considerations for lift wells, machine rooms and lift lobbies in multi-storey buildings.
4. Compare Hydraulic Lifts and Traction Lifts with respect to working principle, advantages, disadvantages and suitable applications.

5. Explain the safety features provided in lifts and escalators. Discuss the relevant provisions recommended in building standards.

UNIT II – HVAC (HEATING, VENTILATION & AIR CONDITIONING)

PART-A

1. Ventilation means:

- A) Cooling the building
- B) Supplying fresh air and removing stale air
- C) Heating the building
- D) Air filtration only

Answer: B

2. Which is a natural method of ventilation?

- A) Exhaust fan
- B) Air conditioner
- C) Windows
- D) Blower

Answer: C

3. Mechanical ventilation uses:

- A) Wind
- B) Fans and blowers
- C) Sunlight
- D) Skylights

Answer: B

4. HVAC stands for:

- A) Heating, Ventilation and Air Conditioning
- B) Heating, Vacuum and Air Cooling
- C) Heat, Ventilation and Cooling
- D) Heat and Air Circulation

Answer: A

5. Human comfort mainly depends on:

- A) Temperature only
- B) Humidity only
- C) Temperature, humidity and air movement
- D) Building colour

Answer: C

6. Refrigeration is the process of:

- A) Heating air
- B) Removing heat
- C) Increasing humidity

D) Producing steam

Answer: B

7. Air filters are used to remove:

A) Heat

B) Dust particles

C) Moisture

D) Light

Answer: B

8. Local heating is suitable for:

A) Large factory

B) Single room

C) Airport

D) Shopping mall

Answer: B

9. Central heating is mainly used in:

A) Small rooms

B) Large buildings

C) Individual houses only

D) Bathrooms

Answer: B

10. Which equipment circulates air inside buildings?

A) Fan

B) Pump

C) Valve

D) Compressor

Answer: A

11. Blowers are mainly used to:

A) Remove water

B) Supply air under pressure

C) Reduce humidity

D) Heat buildings

Answer: B

12. Comfort temperature for occupants generally ranges between:

A) 10–15°C

B) 20–27°C

C) 35–40°C

D) 45–50°C

Answer: B

13. High humidity generally causes:

- A) Increased comfort
- B) Discomfort
- C) Better visibility
- D) Lower temperature

Answer: B

14. Mechanical ventilation is preferred when:

- A) Natural ventilation is insufficient
- B) Windows are large
- C) Wind is always available
- D) Building is open

Answer: A

15. Indoor air quality is improved by:

- A) Air filters
- B) Painting
- C) Lighting
- D) Flooring

Answer: A

16. A basement parking area has poor air circulation. Which system should be installed?

- A) Natural ventilation
- B) Mechanical ventilation
- C) Skylight
- D) Window AC

Answer: B

17. A lecture hall becomes uncomfortable due to high occupancy. The most effective solution is:

- A) Increase lighting
- B) Improve mechanical ventilation
- C) Paint walls
- D) Reduce windows

Answer: B

18. Why are air filters essential in HVAC systems?

- A) To reduce electricity bills
- B) To improve indoor air quality
- C) To increase humidity
- D) To reduce building height

Answer: B

19. Which heating system is suitable for an entire hospital?

- A) Local heating
- B) Central heating
- C) Portable heater
- D) Electric iron

Answer: B

20. In a factory generating dust, which equipment is most important?

- A) Decorative lighting
- B) Air filters
- C) Curtains
- D) Ceiling fan

Answer: B

21. An architect should prefer natural ventilation because it:

- A) Increases operating cost
- B) Saves energy
- C) Requires more machinery
- D) Produces noise

Answer: B

22. A cinema theatre requires uniform air distribution. Which system is preferred?

- A) Ceiling fan only
- B) Mechanical ventilation with ducts
- C) Open windows
- D) Exhaust opening only

Answer: B

23. Refrigeration works on the principle of:

- A) Heat addition
- B) Heat removal
- C) Heat generation
- D) Heat reflection

Answer: B

24. High humidity inside a room mainly results in:

- A) Better comfort
- B) Sweating and discomfort
- C) Better air quality
- D) Increased air movement

Answer: B

25. A blower differs from a fan because it:

- A) Supplies air at higher pressure
- B) Removes heat only
- C) Produces water
- D) Filters air

Answer: A

26. If indoor air contains smoke and dust, the best solution is:

- A) Decorative lights
- B) HVAC with air filtration
- C) Wall painting
- D) Floor polishing

Answer: B

27. Which factor is least related to thermal comfort?

- A) Air movement
- B) Humidity
- C) Temperature
- D) Wall colour

Answer: D

28. Why is mechanical ventilation preferred in underground buildings?

- A) Wind is unavailable
- B) Less electricity is needed
- C) Windows are unnecessary
- D) It reduces construction cost

Answer: A

29. The primary objective of ventilation is to:

- A) Increase humidity
- B) Provide healthy indoor air
- C) Decorate interiors
- D) Reduce daylight

Answer: B

30. HVAC systems improve building performance mainly by:

- A) Increasing floor area
- B) Providing thermal comfort and healthy indoor air
- C) Reducing structural strength
- D) Increasing wall thickness

Answer: B

PART-B

1. Explain the **working principle, components and applications of mechanical ventilation systems**.
2. Explain the principles of natural and mechanical ventilation with neat sketches. Discuss their advantages, disadvantages and applications.
3. Discuss the importance of indoor air quality (IAQ) and explain the methods used to improve it in modern buildings.
4. As an Architectural Assistant, explain the factors to be considered while designing a ventilation system for a commercial building.
5. Compare natural ventilation and mechanical ventilation based on working principle, energy efficiency, cost, maintenance and applications.

UNIT III – SECURITY SYSTEMS

PART-A

1. CCTV stands for:
 - A) Closed Circuit Television
 - B) Central Control Television
 - C) Common Cable Television
 - D) Closed Cable Television

Answer: A

2. The primary purpose of CCTV is:
 - A) Air conditioning
 - B) Building surveillance
 - C) Water supply
 - D) Fire fighting

Answer: B

3. Which security system controls entry into restricted areas?

- A) CCTV
- B) Access Control System
- C) Fire Alarm
- D) Ventilation System

Answer: B

4. Which device is commonly used in an access control system?

- A) Card Reader
- B) Fan
- C) Pump
- D) Compressor

Answer: A

5. A burglar alarm is mainly used to:

- A) Detect fire
- B) Detect unauthorized entry
- C) Improve lighting
- D) Control temperature

Answer: B

6. Which sensor is commonly used in burglar alarm systems?

- A) Motion Sensor
- B) Humidity Sensor
- C) Temperature Sensor
- D) Water Level Sensor

Answer: A

7. The Public Address (PA) System is mainly used for:

- A) Air circulation
- B) Public announcements
- C) Fire extinguishing
- D) Water distribution

Answer: B

8. CCTV cameras are generally connected to:

- A) Water tank
- B) Monitor/Recorder
- C) Transformer
- D) Pump

Answer: B

9. Which security system records video evidence?

- A) CCTV
- B) Access Control
- C) Fire Alarm
- D) Sprinkler

Answer: A

10. Which of the following is a biometric access control device?

- A) Fingerprint Scanner
- B) Ceiling Fan
- C) Blower
- D) Loudspeaker

Answer: A

11. CCTV cameras installed outside buildings are mainly used for:

- A) Decoration
- B) Perimeter security
- C) Ventilation
- D) Lighting

Answer: B

12. The control panel of a burglar alarm system receives signals from:

- A) Sensors
- B) Fans
- C) Water pipes
- D) Air filters

Answer: A

13. Public Address Systems are commonly installed in:

- A) Shopping malls
- B) Railway stations
- C) Airports
- D) All of the above

Answer: D

14. Which device produces sound in a PA system?

- A) Loudspeaker
- B) Camera
- C) Card Reader
- D) Sensor

Answer: A

15. Access control systems improve:

- A) Security
- B) Lighting
- C) Water supply
- D) Ventilation

Answer: A

16. A bank requires continuous monitoring of customer activity. Which system should be installed?

- A) Fire Alarm
- B) CCTV Surveillance
- C) HVAC
- D) Escalator

Answer: B

17. A research laboratory needs restricted entry. Which system is most suitable?

- A) CCTV only
- B) Biometric Access Control
- C) Public Address System
- D) Smoke Detector

Answer: B

18. During a theft attempt, which system automatically alerts the security personnel?

- A) Burglar Alarm
- B) HVAC
- C) Lift

D) Escalator

Answer: A

19. Why is CCTV installed at building entrances?

A) Decoration

B) To monitor visitors

C) Cooling

D) Lighting

Answer: B

20. Which system is essential for emergency announcements during evacuation?

A) CCTV

B) Public Address System

C) Access Control

D) Burglar Alarm

Answer: B

21. Which security system provides both recording and live monitoring?

A) CCTV

B) Fire Extinguisher

C) HVAC

D) Conveyor

Answer: A

22. An architect designing a hospital should install a PA system mainly to:

A) Improve ventilation

B) Broadcast emergency announcements

- C) Reduce lighting
- D) Control lifts

Answer: B

23. If an office requires employee attendance tracking, which system is most suitable?

- A) CCTV
- B) Biometric Access Control
- C) Fire Alarm
- D) Sprinkler

Answer: B

24. Motion detectors are generally installed to:

- A) Detect unauthorized movement
- B) Increase temperature
- C) Reduce humidity
- D) Improve lighting

Answer: A

25. Which security system helps identify the intruder after an incident?

- A) CCTV Recording
- B) PA System
- C) Smoke Detector
- D) Exhaust Fan

Answer: A

26. In a shopping mall, CCTV cameras should mainly be installed at:

- A) Entrances and exits
- B) Roof only
- C) Parking only
- D) Toilets

Answer: A

27. Why are biometric systems preferred over traditional keys?

- A) Lower security
- B) Faster construction
- C) Higher security and unique identification
- D) Lower building cost

Answer: C

28. Which combination provides maximum building security?

- A) CCTV + Access Control + Burglar Alarm
- B) Lift + Escalator
- C) HVAC + Fans
- D) Water Supply + Drainage

Answer: A

29. The primary objective of building security planning is to:

- A) Improve aesthetics
- B) Protect people and property
- C) Increase construction cost
- D) Reduce floor area

Answer: B

30. While designing a commercial building, an architect should plan security systems during:

- A) Initial planning stage
- B) After construction
- C) After occupancy only
- D) During demolition

Answer: A

PART-B

1. Explain the planning and design considerations for security systems in residential, commercial and institutional buildings.
2. Draw a layout showing the installation of CCTV cameras, access control devices, burglar alarm sensors and public address speakers in a commercial building and explain the placement criteria.
3. Explain the working principle, components, advantages and applications of CCTV systems with a neat sketch.
4. Describe the Access Control System, its components, types (card, PIN and biometric), advantages and applications in buildings.
5. Explain the working principle of a Burglar Alarm System with a neat diagram.

UNIT IV – FIRE SAFETY AND FIRE FIGHTING SYSTEMS

PART-A

1. The primary objective of fire safety in buildings is to:
 - A) Improve aesthetics
 - B) Protect life and property
 - C) Reduce construction cost
 - D) Increase ventilation

Answer: B

2. Fire requires three essential elements known as the:
 - A) Fire Circle
 - B) Fire Triangle
 - C) Fire Square
 - D) Fire Ring

Answer: B

3. Which class of fire involves ordinary combustible materials such as wood and paper?
 - A) Class A

- B) Class B
- C) Class C
- D) Class D

Answer: A

4. Which class of fire involves flammable liquids?

- A) Class A
- B) Class B
- C) Class C
- D) Class D

Answer: B

5. Which class of fire involves electrical equipment?

- A) Class A
- B) Class B
- C) Class C
- D) Class D

Answer: C

6. A fire extinguisher used for electrical fires is generally:

- A) Water
- B) Foam
- C) CO₂
- D) Sand

Answer: C

7. Smoke detectors are installed to:

- A) Improve lighting
- B) Detect fire at an early stage
- C) Supply water
- D) Reduce humidity

Answer: B

8. A fire alarm system is used to:

- A) Cool the building
- B) Warn occupants of fire
- C) Increase ventilation
- D) Operate lifts

Answer: B

9. Sprinkler systems are mainly used for:

- A) Ventilation
- B) Automatic fire suppression
- C) Water storage

D) Drainage

Answer: B

10. Fire-resistant doors are provided to:

- A) Improve appearance
- B) Prevent the spread of fire and smoke
- C) Reduce noise
- D) Increase lighting

Answer: B

11. The safest escape route during a fire is:

- A) Lift
- B) Fire Escape Staircase
- C) Escalator
- D) Service Lift

Answer: B

12. Fire exits should:

- A) Open inward
- B) Open outward
- C) Remain locked
- D) Be used as storage space

Answer: B

13. Which equipment supplies water for firefighting inside buildings?

- A) Hose Reel
- B) Fan
- C) Blower
- D) Exhaust Duct

Answer: A

14. Fire hydrants are generally installed:

- A) Only inside rooms
- B) Along roads and building premises
- C) On rooftops only
- D) Inside elevators

Answer: B

15. Emergency lighting is provided to:

- A) Decorate interiors
- B) Help occupants evacuate safely during power failure
- C) Increase daylight
- D) Reduce heat

Answer: B

16. A multi-storey office building should primarily provide which means of safe evacuation?

- A) Passenger Lift
- B) Fire Escape Staircase
- C) Escalator
- D) Goods Lift

Answer: B

17. A fire starts due to a short circuit in an electrical panel. Which extinguisher should be used?

- A) Water
- B) Foam
- C) CO₂
- D) Sand

Answer: C

18. Why are smoke detectors installed near ceilings?

- A) Smoke rises upward
- B) Easier installation
- C) Better lighting
- D) Decorative purpose

Answer: A

19. During building planning, fire exits should be located to:

- A) Increase walking distance
- B) Provide quick and safe evacuation
- C) Reduce ventilation
- D) Improve appearance

Answer: B

20. A chemical storage area contains flammable liquids. Which extinguisher is most suitable?

- A) Water
- B) Foam
- C) CO₂
- D) Dry Chemical Powder (DCP)

Answer: D

21. Which system automatically detects and suppresses fire without human intervention?

- A) Public Address System
- B) Automatic Sprinkler System
- C) CCTV
- D) Access Control

Answer: B

22. Fire-resistant walls are mainly provided to:

- A) Increase floor area
- B) Delay the spread of fire
- C) Improve aesthetics
- D) Reduce noise

Answer: B

23. Why should emergency exits remain unobstructed?

- A) For cleaning purposes
- B) To ensure safe evacuation during emergencies
- C) For ventilation
- D) To improve lighting

Answer: B

24. Which fire protection system provides an audible warning to building occupants?

- A) Fire Alarm
- B) CCTV
- C) HVAC
- D) Lift Control

Answer: A

25. A shopping mall has a high occupancy. Which fire protection system is essential?

- A) Sprinklers and Fire Alarm System
- B) Ceiling Fans
- C) Access Control Only
- D) Escalator Only

Answer: A

26. During a fire emergency, lifts should generally:

- A) Be used by all occupants
- B) Be avoided unless they are designated fire lifts
- C) Operate continuously
- D) Be kept open

Answer: B

27. The main purpose of a fire drill is to:

- A) Test electrical systems
- B) Train occupants for safe evacuation
- C) Inspect plumbing
- D) Improve ventilation

Answer: B

28. Which building feature helps firefighters obtain a reliable water supply?

- A) Fire Hydrant
- B) Skylight
- C) Air Filter
- D) Blower

Answer: A

29. Fire safety planning should begin during:

- A) Interior decoration
- B) Initial building design stage
- C) Painting stage
- D) Building demolition

Answer: B

30. The overall aim of a fire protection system is to:

- A) Increase construction cost
- B) Protect occupants, property and the building structure
- C) Improve appearance
- D) Reduce daylight

Answer: B

PART-B

1. Explain the causes of fire, the Fire Triangle, and the methods of fire prevention in buildings.
2. Describe the means of escape in buildings. Explain the planning requirements for fire exits, staircases, corridors and emergency lighting.
3. Explain the working principle and components of a fire detection and alarm system with a neat sketch.
4. Explain the automatic sprinkler system, fire hydrant system and hose reel system with neat sketches.
5. Compare active fire protection systems and passive fire protection systems with suitable examples.

UNIT V – ACOUSTICS AND SOUND CONTROL IN BUILDINGS

PART-A

1. Acoustics is the science of:

- A) Light
- B) Sound
- C) Heat
- D) Electricity

Answer: B

2. Sound is produced due to:

- A) Light
- B) Vibration
- C) Pressure
- D) Heat

Answer: B

3. The unit of sound intensity level is:

- A) Pascal
- B) Watt
- C) Decibel (dB)
- D) Newton

Answer: C

4. The persistence of sound after the source stops is called:

- A) Reflection
- B) Reverberation
- C) Diffraction
- D) Refraction

Answer: B

5. Excessive reverberation in a hall causes:

- A) Better speech clarity
- B) Poor speech intelligibility
- C) Better ventilation
- D) Lower temperature

Answer: B

6. Which material has good sound-absorbing properties?

- A) Marble
- B) Glass
- C) Acoustic Board
- D) Granite

Answer: C

7. The reflection of sound from a distant surface is called:

- A) Echo
- B) Noise
- C) Pitch
- D) Loudness

Answer: A

8. Noise is:

- A) Pleasant sound
- B) Unwanted sound
- C) Musical sound
- D) Natural sound

Answer: B

9. Which building requires special acoustic treatment?

- A) Warehouse
- B) Auditorium
- C) Garage
- D) Store Room

Answer: B

10. Sound insulation is used to:

- A) Increase temperature
- B) Prevent sound transmission
- C) Improve lighting
- D) Increase humidity

Answer: B

11. Carpets improve room acoustics by:

- A) Reflecting sound
- B) Absorbing sound
- C) Producing sound
- D) Increasing echo

Answer: B

12. The main objective of room acoustics is:

- A) Improve ventilation
- B) Provide clear and pleasant sound
- C) Increase lighting
- D) Reduce floor area

Answer: B

13. Acoustic ceiling tiles are mainly used for:

- A) Decoration
- B) Sound absorption
- C) Waterproofing
- D) Fire fighting

Answer: B

14. Hard surfaces generally:

- A) Absorb sound
- B) Reflect sound

- C) Eliminate sound
- D) Reduce vibration

Answer: B

15. Acoustic design is important in:

- A) Auditoriums
- B) Classrooms
- C) Conference Halls
- D) All of the above

Answer: D

16. A lecture hall has poor speech clarity due to excessive echo. Which solution is most suitable?

- A) Marble flooring
- B) Acoustic wall panels
- C) Glass partitions
- D) Metal ceiling

Answer: B

17. Which material should be avoided on auditorium walls if echo is to be minimized?

- A) Acoustic Board
- B) Heavy Curtains
- C) Polished Marble
- D) Mineral Wool

Answer: C

18. A music auditorium requires high-quality sound distribution. Which factor is most important?

- A) Room Acoustics
- B) Wall Colour
- C) Floor Finish
- D) Building Height

Answer: A

19. In a hospital located near a highway, which measure is most effective in reducing traffic noise?

- A) Larger windows
- B) Double-glazed windows
- C) Glass partitions only
- D) Skylights

Answer: B

20. Which acoustic defect occurs when reflected sound reaches the listener after a noticeable delay?

- A) Echo
- B) Reverberation
- C) Resonance
- D) Noise

Answer: A

21. During auditorium design, the ceiling should be planned to:

- A) Reflect sound uniformly
- B) Block ventilation
- C) Increase room temperature
- D) Reduce lighting

Answer: A

22. Why are heavy curtains used in theatres?

- A) Decoration
- B) Sound absorption
- C) Waterproofing
- D) Fire protection

Answer: B

23. Which building material provides better sound insulation?

- A) Hollow Partition
- B) Dense Concrete Wall
- C) Thin Glass Sheet
- D) Wire Mesh

Answer: B

24. Excessive external noise in an office building can be controlled by:

- A) Open windows
- B) Acoustic glazing and insulation
- C) Reflective walls
- D) Higher ceilings only

Answer: B

25. Which factor should an architect consider first while designing an auditorium?

- A) Seating Capacity and Acoustics
- B) Paint Colour
- C) Landscaping
- D) Roof Decoration

Answer: A

26. The main purpose of sound insulation between adjacent classrooms is to:

- A) Increase ventilation
- B) Prevent sound transmission
- C) Improve daylight
- D) Reduce humidity

Answer: B

27. Which acoustic material is commonly used for false ceilings?

- A) Gypsum Acoustic Tiles
- B) Granite Slabs
- C) Marble Panels
- D) Steel Sheets

Answer: A

28. A conference room requires clear speech communication. Which acoustic treatment is essential?

- A) Reflective metal walls
- B) Sound-absorbing materials
- C) Glass flooring
- D) Stone ceiling

Answer: B

29. The primary objective of acoustic design is to:

- A) Increase construction cost
- B) Achieve clear, comfortable and intelligible sound
- C) Improve building appearance only
- D) Increase room size

Answer: B

30. An architect should incorporate acoustic planning during:

- A) Initial building design stage
- B) Painting stage
- C) Furniture arrangement only
- D) Demolition stage

Answer: A

PART-B

1. Describe the principles of room acoustics. Explain the factors affecting good acoustics in buildings.
2. Explain the acoustic defects such as echo, reverberation, sound focusing and resonance. Discuss suitable methods to control these defects.

3. Explain the properties, advantages and applications of acoustical materials used in walls, ceilings and floors.
4. Draw the layout of an auditorium showing stage, audience seating, sound-reflecting surfaces, sound-absorbing materials and acoustic treatment.
5. Explain the properties, advantages and applications of acoustical materials used in walls, ceilings and floors.