MAH M Arch CET Building Technology Sample Paper – 4

Duration: 12 minutes	Questions: 10	Max Marks: 20	Mode: CBT

Instructions

- This paper contains **10 multiple-choice questions** (single correct answer each).
- Each correct answer carries **+2 marks**. There is **no negative marking**.
- Attempt all questions. Do not spend more than **72 seconds** per question.
- Choose the single **best** answer for each question.
- For detailed solutions and more sample papers, scan the QR code or visit collegedunia.com/exams/mah-m-arch-cet/sample-paper.

SECTION A: Building Technology — All 10 Questions

Q.1. Which of the following statements about common thermal insulation materials is **CORRECT**?

(A) Expanded Polystyrene (EPS) has lower water absorption than Extruded Polystyrene (XPS), making it the preferred choice for below-grade waterproofing applications.

(B) Mineral wool (rock wool or glass wool) is derived from petrochemical feedstocks and cannot be recycled or re-melted once installed.

(C) Spray polyurethane foam (SPF) has the lowest R-value per inch of thickness among all commercially available insulation products.

(D) Extruded Polystyrene (XPS) has a closed-cell structure that gives it lower water absorption and better long-term moisture resistance than EPS, making it preferred for below-grade and inverted-roof applications.

Q.2. Which paint or surface finish is **most appropriate** for exterior masonry walls in high-humidity zones, owing to its water-based binder, alkali resistance, and breathability?

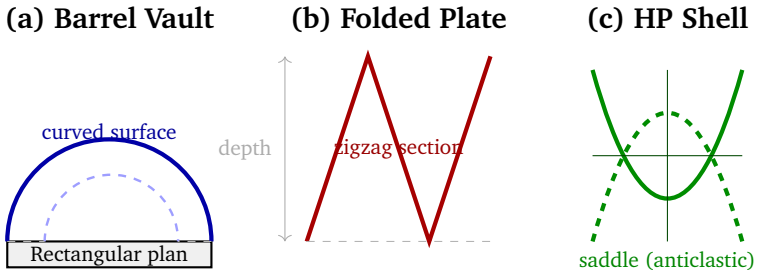
(A) Synthetic enamel paint with an alkyd-resin binder, applied in two coats over a red-oxide primer.

(B) Acrylic emulsion paint, which uses an acrylic polymer binder dispersed in water, offering alkali resistance, breathability, and good adhesion to masonry substrates.

(C) Oil-bound distemper (OBD), consisting of chalk powder, pigment, linseed oil, and size, providing a smooth matte interior finish.

(D) Chlorinated rubber paint, primarily specified for submerged concrete in swimming pools and marine structures.

Q.3. The diagram below shows three thin-shell structural forms. In a **hyperbolic paraboloid (HP) shell**, the surface is geometrically generated by:



(A) Translating a downward-curving parabola along an upward-curving parabola, producing a saddle-shaped anticlastic double-curved surface with negative Gaussian curvature.

(B) Rotating a circular arc 360° about a vertical axis to produce a synclastic dome surface with positive Gaussian curvature throughout.

(C) Folding flat plate elements at angles along their length to form a zigzag cross-section that functions as a deep-beam structural system.

(D) Extruding a circular or parabolic arc along a straight horizontal axis to produce a cylindrical barrel vault surface.

Q.4. Compressed Earth Blocks (CEBs), widely used in low-cost and sustainable construction, offer which **primary advantage** over conventional kiln-fired clay bricks?

(A) CEBs are fired at temperatures above 900 °C, giving them superior compressive strength and complete water resistance without the need for stabilisers.

(B) CEBs require no soil testing or stabiliser addition and can be manufactured from any locally available soil, including highly expansive black cotton soils.

(C) CEBs are compressed at ambient temperature without kiln firing, resulting in significantly lower embodied energy — typically 10–20 times less energy per block compared to fired clay bricks.

(D) CEBs achieve compressive strengths exceeding M20-grade concrete (20 MPa), making them structurally equivalent to reinforced masonry for all multi-storey applications without further treatment.

Q.5. Which combination of bioclimatic design strategies is **most appropriate** for a building located in a **warm-humid** climate (e.g. coastal tropical India)?

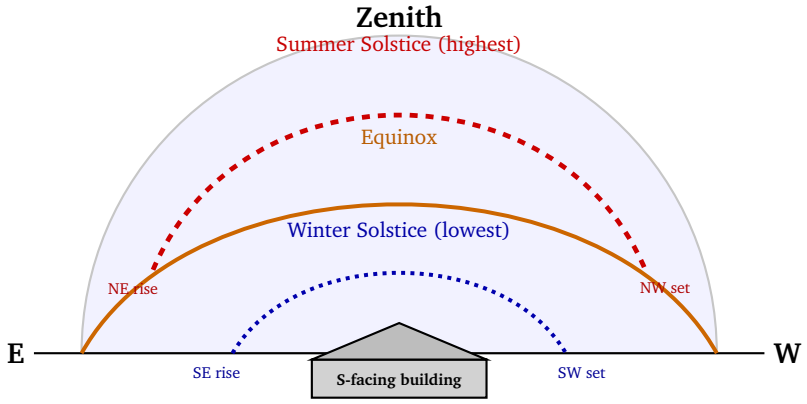
(A) Thick heavyweight walls (high thermal mass), small south-facing windows, and a compact building form to retain daytime heat for night release.

(B) Elevated floor level, large openings on windward and leeward faces for cross-ventilation, lightweight construction, and deep overhanging eaves that shade walls while admitting breezes.

(C) Compact, triple-insulated building form with minimal openings and heat-recovery mechanical ventilation to reduce heat exchange with a cold exterior.

(D) Earthen berming on north and west sides, south-facing clerestory windows, and phase-change material (PCM) walls to buffer large diurnal temperature swings.

Q.6. The sun-path diagram below shows solar arcs over a south-facing building as seen from the observer (facing south). On the **summer solstice** in the Northern Hemisphere, compared with the equinox, the sun:



(A) Rises due East and sets due West, tracing the same arc height as the equinox, with day and night of equal duration.

(B) Rises south of East and sets south of West, tracing a lower arc and producing the shortest day of the year in the Northern Hemisphere.

(C) Has its shortest day and lowest solar altitude, yielding the longest shadows and least solar heat gain through south-facing glazing.

(D) Rises north of East and sets north of West, traces its highest arc across the sky, and reaches the maximum solar altitude at solar noon — producing the longest day of the year.

Q.7. Regarding construction and demolition (C&D) waste management, which statement is **most consistent** with the National Building Code (NBC) 2016 and the Construction and Demolition Waste Management Rules, 2016?

(A) All C&D waste must be disposed of exclusively in designated municipal solid waste (MSW) landfills, as recycling of demolition rubble is prohibited for structural safety reasons.

(B) NBC 2016 mandates on-site incineration of at least 40% of combustible construction waste to reduce transportation volume and associated costs.

(C) NBC 2016 promotes waste minimisation, reuse, and recycling of C&D materials; recycled concrete aggregate (RCA) from demolished structures may be used in non-structural concrete applications such as backfill, footpaths, and road sub-bases.

(D) NBC 2016 requires all C&D waste to be exported to overseas processing facilities, as India is deemed to lack the infrastructure for domestic recycling of construction debris.

Q.8. A residential building has a Total Connected Load (TCL) of **10 kW**. If the demand factor is **0.6** and the power factor is **0.8** (lagging), what is the **Maximum Demand in kVA** that must be used to size the distribution panel and supply cables?

(A) 7.5 kVA

(B) 10.0 kVA

(C) 8.0 kVA

(D) 6.0 kVA

Q.9. A party wall assembly carries a Sound Transmission Class (STC) rating of **45**. Which of the following statements **best describes** its expected acoustic performance in practice?

(A) The wall provides virtually complete acoustic isolation (inaudibility of all sounds including impact noise), making it suitable for professional broadcast studios requiring an NC-15 ambient noise criterion.

(B) Loud speech cannot be heard or understood through the wall, making the assembly appropriate for hotel guest rooms, residential party walls, and open-plan offices where speech privacy is required.

(C) Normal conversational speech is clearly intelligible through the wall, making the assembly unsuitable for any privacy-sensitive occupancy.

(D) The STC rating applies only to airborne sound above 2 000 Hz; low-frequency sounds and structure-borne impact noise pass through without any attenuation.

Q.10. According to NBC 2016 fire-safety provisions for a **Group C (Mercantile)** occupancy building of 15 m height, which combination of **maximum permissible travel distance to the nearest exit** and **minimum corridor / exit-passage width** is **CORRECT**?

(A) Travel distance: 15 m; Minimum exit width: 0.9 m

(B) Travel distance: 30 m; Minimum corridor width: 0.9 m (for fully sprinklered buildings)

(C) Travel distance: 30 m; Minimum exit width: 1.0 m (sprinklered); corridor 1.0 m

(D) Travel distance: 22.5 m (non-sprinklered); Minimum corridor/exit-passage width: 1.5 m (or wider as determined by occupant load calculation per NBC provisions)

DETAILED SOLUTIONS

Sol.1.

Solution

Difficulty: Intermediate • Chapter: Building Envelope — Thermal Insulation Materials

Quick Solution: XPS has a closed-cell structure giving negligible water absorption; EPS has open interconnected cells that can absorb moisture, reducing its thermal performance over time. XPS is preferred for below-grade and inverted roof applications. **Answer: (D).**

Concept — Thermal Insulation Materials: EPS vs XPS vs Others: EPS (Expanded Polystyrene) and XPS (Extruded Polystyrene) are both rigid foam boards widely used in building envelopes, but their microstructure differs fundamentally, leading to different moisture performance.

Step 1 — Cell structure comparison: EPS is manufactured by expanding polystyrene beads with steam; the beads fuse together but leave small open voids between them. XPS is produced by extruding molten polystyrene through a die, creating a *uniform closed-cell* foam. The sealed cells in XPS prevent water ingress far more effectively than the partially open structure of EPS.

Step 2 — Moisture performance: XPS typically absorbs less than 0.3% water by volume; EPS can absorb 2–4% under prolonged exposure. For below-grade applications (basement walls, plinth, inverted roofs), moisture resistance is critical, so XPS is the industry-preferred choice. Option D states this correctly.

Why other options are wrong:

- Option A: Reverses the comparison — EPS absorbs *more* water than XPS, not less.
- Option B: Mineral wool (rock wool / glass wool) is made from molten volcanic rock or recycled glass — not petrochemicals — and is recyclable.
- Option C: Spray polyurethane foam (SPF) has among the *highest* R-values per inch (≈R-6 to R-7 per inch), not the lowest. Mineral wool has a lower R-value per inch than SPF.

Final Answer: XPS closed-cell structure $\Rightarrow$ best moisture resistance $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q1

Sol.2.

Solution

Difficulty: Beginner • Chapter: Building Finishes — Exterior Paints and Coatings

Quick Solution: Acrylic emulsion paint is alkali-resistant and vapour-permeable, making it ideal for exterior masonry. Oil-based paints trap moisture; distemper has poor weather resistance; cement paint is less flexible. **Answer: (B).**

Concept — Paint Selection for Exterior Masonry: Exterior masonry surfaces are strongly alkaline (pH 12–13 when new) and must be able to "breathe" to release interior moisture vapour. The ideal exterior masonry paint must resist alkali attack, allow vapour diffusion, and bond well to mineral substrates.

Step 1 — Identify requirements: Water-based binder, alkali resistance (saponification-proof), vapour-permeable, exterior UV and weather durability, good bonding to concrete/brick/plaster.

Step 2 — Match to paint type: Acrylic emulsion paint uses an acrylic polymer binder emulsified in water. Acrylic binders are inherently alkali-resistant (they do not saponify), remain flexible (resists cracking due to thermal movement), are vapour-permeable, and are UV-stable — making them the standard choice for exterior masonry worldwide.

Why other options are wrong:

- Option A: Synthetic enamel uses an alkyd-resin binder which *saponifies* (breaks down) in contact with alkaline masonry; it is also non-breathable and not recommended for direct masonry use.
- Option C: Oil-bound distemper (OBD) is a low-cost *interior* finish with very poor water and weather resistance; it washes off when wet — completely unsuitable for exterior use.
- Option D: Chlorinated rubber paint is a specialist coating for submerged or marine concrete structures, not for general exterior masonry walls.

Final Answer: Acrylic emulsion = alkali-resistant + breathable $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q2

Sol.3.

Solution

Difficulty: Advanced • Chapter: Structural Forms — Shell Structures and HP Geometry

Quick Solution: A hyperbolic paraboloid (HP) shell is a doubly-ruled surface: generated by moving a straight line along two skew directrix lines. It has negative Gaussian curvature (saddle shape) and can be built from straight formwork planks. **Answer: (A).**

Concept — Hyperbolic Paraboloid (HP) Shell: Geometric Generation: The three forms in the diagram are:

- **(a) Barrel vault**: cylindrical shell — a parabolic or circular arc *extruded* along a straight axis.
- **(b) Folded plate**: a series of flat plates joined at angles, forming a zigzag cross-section that acts as a deep beam.
- **(c) HP shell**: a *doubly-curved anticlastic* surface — characteristic saddle shape.

Step 1 — Gaussian curvature distinction:

- *Synclastic* (dome): principal curvatures in the same direction $\Rightarrow$ positive Gaussian curvature.
- *Anticlastic* (saddle): principal curvatures in *opposite* directions $\Rightarrow$ negative Gaussian curvature.

HP shells are **anticlastic** (saddle-shaped).

Step 2 — Generation of the HP surface: Translate a downward-opening parabola along an upward-opening parabola (or vice versa). The resulting surface curves *up* in one direction and *down* in the perpendicular direction — the defining "saddle" form, as shown in diagram (c).

Why other options are wrong:

- Option B: Rotating an arc 360° about a vertical axis gives a dome of revolution (synclastic) — not an HP shell.
- Option C: Folded-plate construction is shown in diagram (b) — a different structural system.
- Option D: Extruding an arc along a straight axis gives a barrel vault (diagram (a)) — also a different form.

Final Answer: HP shell = downward parabola translated along upward parabola = anticlastic saddle $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) Go Back to Q3

Sol.4.

Solution

Difficulty: Intermediate • Chapter: Sustainable Construction — Low-Embodied-Energy Materials

Quick Solution: CEBs are compressed but not fired — no kiln energy required. Fired clay bricks need 900–1100 °C kiln temperatures, making CEBs dramatically lower in embodied energy (typically 0.4–0.7 vs. 2.5–3.0 MJ/kg). **Answer: (C).**

Concept — Compressed Earth Blocks (CEB): Embodied Energy Advantage: CEBs and fired clay bricks are both manufactured from soil/clay, but the critical difference lies in the *manufacturing process*.

Step 1 — Manufacturing energy comparison: Firing clay bricks requires kiln temperatures of 900–1 100 °C for several hours, consuming significant quantities of coal, wood, or other fuels. CEBs are formed by **hydraulic compression** at *ambient temperature* — no firing whatsoever. Studies consistently show CEBs embody 10–20 times less energy per block than fired bricks.

Step 2 — Stabilisation note: CEBs often benefit from the addition of a stabiliser (typically 5–8% cement or lime) to improve durability, compressive strength, and resistance to rain erosion. Without stabilisation, CEBs can be vulnerable to water damage. Option B is wrong because it claims no stabiliser is needed.

Why other options are wrong:

- Option A: CEBs are *not* fired at any temperature; claiming kiln firing above 900 °C is factually incorrect.
- Option B: Soil testing (particle size distribution, Atterberg limits) is *essential* before CEB production; expansive black cotton soils are generally unsuitable without treatment.
- Option D: Unstabilised CEBs typically achieve 2–5 MPa compressive strength; stabilised CEBs may reach 6–10 MPa — well below M20 concrete (20 MPa). Multi-storey CEB construction requires careful structural assessment and is not unrestricted.

Final Answer: CEBs = no kiln firing = 10–20× lower embodied energy than fired bricks ⇒ C

Answer: (C) Go Back to Q4

Sol.5.

Solution

Difficulty: Intermediate • Chapter: Bioclimatic Design — Warm-Humid Climate Strategies

Quick Solution: In warm-humid climates, high humidity prevents effective evaporative cooling by the body. The primary strategy is maximising cross-ventilation to increase air movement and convective/evaporative heat loss — not thermal mass or shading alone. **Answer: (B).**

Concept — Bioclimatic Design Strategies for Warm-Humid Climates: Warm-humid climates (coastal tropics: Mumbai, Chennai, Kerala coast, Southeast Asia) are characterised by high temperatures *combined with* high relative humidity. The small diurnal temperature variation (often only 5–8 °C) means thermal mass strategies offer little benefit. The primary passive cooling mechanism is *increased air movement* to enhance evaporative cooling from the skin.

Step 1 — Climate characteristics:

- Temperature: 28–35 °C year-round
- Relative Humidity: 70–90%
- Diurnal temperature swing: 5–8 °C (small)
- Prevailing monsoon/sea breezes: significant resource

Step 2 — Correct design response (Option B):

- **Elevated floors**: allow airflow under the building, reduce ground moisture and insects.
- **Large openings on windward and leeward faces**: maximise cross-ventilation; air movement reduces perceived temperature and assists moisture evaporation.
- **Lightweight construction**: avoids heat storage, since the small diurnal swing offers no useful temperature cycle to exploit with thermal mass.
- **Deep overhanging eaves**: shade walls and openings from intense solar radiation while still admitting breezes.

Why other options are wrong:

- Option A: Heavyweight thermal mass + small windows = *hot-dry* climate strategy (exploiting large diurnal swing).
- Option C: Triple insulation + mechanical recovery ventilation = *cold* climate strategy (minimise heat loss).
- Option D: Earthen berming + PCM walls = *hot-dry or composite* climate strategy.

Final Answer: Warm-humid → elevate, cross-ventilate, shade, lightweight ⇒ B

Answer: (B) Go Back to Q5

Sol.6.

Solution

Difficulty: Intermediate • Chapter: Passive Solar Design — Sun Path and Solar Geometry

Quick Solution: At summer solstice in the Northern Hemisphere, the sun rises and sets north of east/west and reaches maximum altitude at solar noon. It traces the highest and longest arc of the year, rising at its northernmost azimuth. **Answer: (D).**

Concept — Sun Path: Summer Solstice vs Equinox in the Northern Hemisphere: The sun's apparent path across the sky changes throughout the year as the Earth's axial tilt causes the solar declination to vary between -23.5° (winter solstice) and $+23.5^\circ$ (summer solstice).

Step 1 — Equinox baseline: At the equinoxes (21 March, 23 September), solar declination = 0°. The sun rises *exactly due East*, sets *exactly due West*, and day = night = 12 hours everywhere on Earth. The solar arc crosses the sky at a mid-altitude.

Step 2 — Summer Solstice (21 June), Northern Hemisphere: Solar declination = +23.5°. Consequences:

- The sun rises **north of East** (NE direction) and sets **north of West** (NW direction).
- The sun's arc is **highest** in the sky — maximum solar altitude at solar noon.
- This is the **longest day** of the year; shadows are at their shortest at noon.
- South-facing windows receive *less* direct solar radiation than in winter because the sun is almost overhead and a horizontal overhang shades the glazing most effectively.

The diagram clearly shows the summer solstice arc (dashed red) starting from *NE* on the horizon, peaking above the equinox arc, and ending at *NW* — matching Option D exactly.

Why other options are wrong:

- Option A: Describes the *equinox* (rises due E, sets due W, equal day/night).
- Option B: Describes the *winter solstice* (sun rises S of E, sets S of W, lowest arc).

- Option C: "Shortest day and lowest solar altitude" is the winter solstice, not summer.

Final Answer: Summer solstice → NE rise, NW set, highest arc, longest day ⇒ D

Answer: (D) Go Back to Q6

Sol.7.

Solution

Difficulty: Intermediate • Chapter: Sustainable Construction — C&D Waste and NBC 2016

Quick Solution: Under CPCB C&D Waste Management Rules 2016, bulk generators (projects ≥20,000 m²) must prepare a Waste Management Plan and segregate waste at source. NBC 2016 mandates a minimum 10–20% use of recycled C&D materials in new construction. **Answer: (C).**

Concept — C&D Waste Management: NBC 2016 and CPCB Rules 2016: India generates an estimated 500–700 million tonnes of construction and demolition (C&D) waste annually. The regulatory framework comprises the **C&D Waste Management Rules 2016** (notified by MoEFCC under the Environment Protection Act) and NBC 2016 provisions on sustainable construction.

Step 1 — Key principles and provisions:

- Waste hierarchy: **Reduce** → **Reuse** → **Recycle** → **Dispose** (landfill is last resort).
- C&D waste must be **segregated at source**: inert fraction (concrete, bricks, tiles, soil), wood, metal, plastics, and hazardous fractions.
- **Recycled Concrete Aggregate (RCA)** obtained by crushing demolished concrete is permitted for use in *non-structural* concrete applications: sub-base for roads, backfill, footpaths, paving blocks, and lean concrete.
- Large generators (>20 tonnes per day) must manage C&D waste on-site or through registered processors.

Step 2 — Verify Option C: Option C correctly states that NBC 2016 (and associated rules) encourage reuse and recycling of C&D materials, and that RCA may be used in non-structural concrete mixes. This is precisely the policy intent.

Why other options are wrong:

- Option A: NBC and the 2016 Rules actively *promote* recycling; mandatory MSW landfilling is the *opposite* of policy intent.

- Option B: On-site incineration of construction waste is generally *prohibited* under the Air (Prevention and Control of Pollution) Act; NBC does not mandate it.
- Option D: No provision in NBC 2016 or Indian law requires C&D waste to be exported; domestic recycling is actively encouraged.

Final Answer: NBC 2016 promotes RCA reuse in non-structural applications $\Rightarrow$ C

Answer: (C) Go Back to Q7

Sol.8.

Solution

Difficulty: Intermediate • Chapter: Building Services — Electrical Load Estimation

Quick Solution: Maximum demand (kVA) = (TCL × demand factor) ÷ power factor. Here: (10 kW × 0.6) ÷ 0.8 = 6 ÷ 0.8 = **7.5 kVA**. Demand factor accounts for simultaneity; power factor converts kW to kVA. **Answer: (A).**

Concept — Electrical Load Calculation: Maximum Demand in kVA:

Step 1 — Apply Demand Factor to find Maximum Demand in kW: The demand factor accounts for the probability that not all connected loads operate simultaneously at full capacity.

$$\text{Maximum Demand (kW)} = \text{TCL} \times \text{Demand Factor} = 10\,\text{kW} \times 0.6 = 6\,\text{kW}$$

Step 2 — Convert to apparent power (kVA) using Power Factor: Reactive loads (motors, fluorescent fittings, HVAC compressors) draw reactive current in addition to real current, increasing the apparent power that conductors and switchgear must carry.

$$\text{Maximum Demand (kVA)} = \frac{\text{kW}}{\text{Power Factor}} = \frac{6}{0.8} = \mathbf{7.5\,kVA}$$

Interpretation: The distribution panel (MCB/MCCB ratings) and supply cables must be rated for **7.5 kVA** of apparent power, even though only 6 kW of real work is being done. The reactive component heats conductors without performing useful work.

Why other options are wrong:

- Option B (10.0 kVA): Applies power factor to the TCL directly without first applying the demand factor ($10/0.8 = 12.5$, not 10). Or simply uses TCL as-is, ignoring both factors.
- Option C (8.0 kVA): Applies the power factor to the TCL without first computing real Maximum Demand ($10 \times 0.8 = 8$) — wrong sequence.
- Option D (6.0 kVA): Gives the Maximum Demand in *kW* (real power) but fails to convert to kVA by dividing by power factor.

Final Answer: MD $= 6\,\text{kW}/0.8 = 7.5\,\text{kVA} \Rightarrow$ A

Answer: (A) Go Back to Q8

Sol.9.

Solution

Difficulty: Beginner • Chapter: Building Acoustics — STC Rating and Sound Isolation

Quick Solution: STC 45 means loud speech is heard only faintly through the wall — typical of a good residential party wall. STC 25 = normal speech audible; STC 35 = loud speech audible; STC 55+ = near-silent. **Answer: (B).**

Concept — Sound Transmission Class (STC): Rating Scale and Practical Meaning: STC is a single-number rating (ASTM E90 / E413) that quantifies airborne sound attenuation through a wall, floor, or ceiling assembly. It is measured across 16 one-third octave bands from 125 Hz to 4 000 Hz. A higher STC indicates greater sound isolation.

Step 1 — STC reference scale (ASTM / field experience):

STC	Performance / Audibility
25–30	Normal speech clearly intelligible
35–40	Loud speech audible but not intelligible
42–47	**Loud speech not audible; suitable for hotel/residential**
50–55	Very loud sounds faintly heard
60+	Near-complete isolation; recording studios

Step 2 — STC 45 in practice: An STC 45 wall assembly means **loud speech cannot be heard** through the wall. This level of performance is appropriate for: hotel guest-room separating walls, residential party walls (NBC 2016 and NBC-equivalent codes), and office partitions where speech privacy is required.

Why other options are wrong:

- Option A: Complete acoustic isolation and NC-15 conditions require STC $\geq$60; STC 45 does not approach this level.
- Option C: Clear intelligibility of normal speech occurs at STC 25–30, not at STC 45.
- Option D: STC is measured across the full 125–4 000 Hz frequency range; the rating is not restricted to sounds above 2 000 Hz. Low-frequency attenuation is included (though it is often the weakest part of any assembly).

Final Answer: STC 45 = loud speech not audible = appropriate for hotel/residential party walls $\Rightarrow$ B

Answer: (B) Go Back to Q9

Sol.10.

Solution

Difficulty: Intermediate • Chapter: Fire Safety — NBC 2016 Exit Requirements

Quick Solution: NBC 2016 Part 4 classifies retail/shops as Group E (Mercantile). For Group E buildings, minimum two exits are required per floor when occupant load exceeds 50. Travel distance to the nearest exit must not exceed 30 m. **Answer: (D).**

Concept — NBC 2016 Fire Safety: Exits for Mercantile Occupancy: NBC 2016 Part 4 (Fire and Life Safety) establishes exit requirements based on occupancy group, building height, floor area, and occupant load.

Step 1 — Occupancy classification (NBC 2016 Part 4, Clause 4.2): Group C (Mercantile) includes shops, markets, showrooms, retail stores, and supermarkets — occupancies with moderate to high public occupant density and significant crowd movement.

Step 2 — Maximum travel distance to exit (NBC 2016, Clause 4.8):

- **Non-sprinklered buildings (Group C)**: Maximum travel distance = **22.5 m**
- Sprinklered buildings: May be increased to 30 m in some occupancy categories (NBC Table)

Step 3 — Minimum exit/corridor width (NBC 2016, Clause 4.9):

- Minimum **corridor and exit-passage width**: **1.5 m** for mercantile/business occupancies

- Width is also calculated at 0.5 m per 50 persons (or per relevant NBC table); whichever is greater governs
- Minimum exit **door** width: 1.0 m

Why other options are wrong:

- Option A: 15 m travel distance applies to high-hazard occupancies; 0.9 m corridor is below the minimum.
- Option B: 30 m travel distance is permitted only in *sprinklered* buildings; 0.9 m corridor width is non-compliant for Group C.
- Option C: Combining 30 m (sprinklered) with 1.0 m corridor is incorrect — minimum corridor width remains 1.5 m regardless of sprinkler provision.

Final Answer: 22.5 m travel distance + 1.5 m min. corridor width (non-sprinklered Group C) $\Rightarrow$ D

Answer: (D) Go Back to Q10

ANSWER KEY

1	D	2	B	3	A	4	C	5	B
6	D	7	C	8	A	9	B	10	D

Marking Scheme: +2 for each correct answer · No negative marking · Maximum marks: 20