MAH M Arch CET Environment
Sample Paper – 8

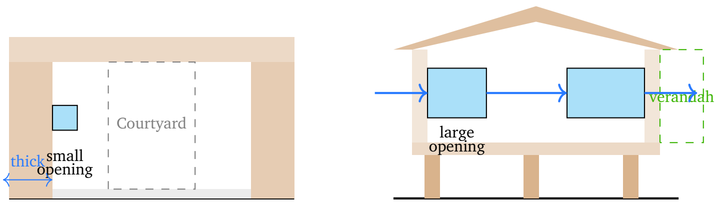
Duration: 12 Minutes | Maximum Marks: 20

Instructions

- This paper contains **10 Multiple Choice Questions** from the **Environment** section.
- Each question carries **+2 marks**. There is **no negative marking**.
- Only **one** option is correct for each question.
- Total time allotted: **12 minutes**. Manage your time carefully.
- Click the QR code in the footer or visit collegedunia.com for more sample papers.

QUESTIONS

Q1. Vernacular architecture in India responds to local climate through passive design strategies. The figure below shows two schematic building sections. Which of the following statements **correctly matches** the building type with its defining passive design features?



(i) Hot-Dry thick walls, small openings, central courtyard

(ii) Hot-Humid raised floor, large openings, cross-ventilation, verandah

(A) Building (i) represents a hot-dry climate response: thick high-thermal-mass walls limit daytime heat gain, small openings reduce solar penetration, and the central courtyard creates a shaded microclimate with cooler air stratification.

(B) Building (ii) represents a hot-dry climate response: the raised floor elevates occupants above radiant ground heat, large windows promote solar gain in winter, and the verandah acts as a thermal buffer.

(C) Both buildings use identical passive strategies; the difference is only in material choice—mud brick versus fired brick.

(D) Building (i) represents a hot-humid climate response where the courtyard promotes evaporative cooling, while building (ii) is suited to cold climates due to its insulating sloped roof.

Q2. An architect is selecting masonry units for a low-carbon residential project. The specification team compares conventional fired clay bricks with fly ash bricks. Which of the following most accurately describes the **environmental advantage** of fly ash bricks?

(A) Fly ash bricks have a significantly higher compressive strength (>40 MPa) than clay bricks and are therefore self-compacting, eliminating the need for mortar and reducing construction waste.

(B) Fly ash bricks are harvested from volcanic deposits and are therefore a naturally renewable geological resource with a zero-extraction carbon footprint.

(C) Fly ash bricks utilise a coal-fired power-plant by-product that would otherwise go to landfill, require no kiln firing (cured by steam or autoclave), and reduce the quarrying of agricultural topsoil needed for clay bricks.

(D) Fly ash bricks sequester atmospheric CO_2 during manufacture through an exothermic carbonation reaction, making them carbon-negative across their lifecycle.

Q3. Under the framework of the Kyoto Protocol, developed nations (Annex I countries) that exceed their greenhouse gas emission targets may fulfil part of their obligation by financing emission-reduction or carbon-removal projects in developing countries and receiving certified emission reductions (CERs) in return. This market-based flexibility mechanism is called:

(A) Joint Implementation (JI) — a mechanism for emission-reduction projects between two Annex I countries.

(B) Clean Development Mechanism (CDM) — a mechanism under Article 12 of the Kyoto Protocol enabling Annex I nations to invest in sustainable-development projects in non-Annex I (developing) countries and earn CERs.

(C) Emissions Trading Scheme (ETS) — a cap-and-trade system confined to the European Union that sets an absolute cap on total emissions.

(D) Nationally Determined Contribution (NDC) — a voluntary climate pledge submitted by each country under the Paris Agreement.

Q4. The **albedo** of a surface is defined as the fraction of incoming solar radiation that is reflected back to the atmosphere. A typical asphalt road surface has an albedo of about 0.04–0.12, while a fresh snow surface has an albedo close to 0.90. In the context of the **Urban Heat Island (UHI)** effect, which statement is **most accurate**?

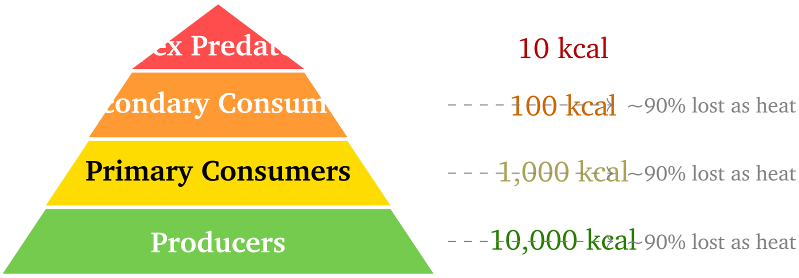
(A) Urban areas have higher albedo than rural surroundings because glass curtain walls on high-rise buildings reflect most incoming solar radiation back to the sky.

(B) Increasing the albedo of urban surfaces—for example through cool roofs and light-coloured pavements—intensifies the UHI effect by reflecting more longwave radiation downward.

(C) Low albedo surfaces lose heat rapidly at night through longwave re-radiation, reducing nocturnal UHI intensity to negligible levels.

(D) Urban surfaces dominated by low-albedo materials such as asphalt and dark concrete absorb a greater fraction of solar radiation, store heat in their high thermal mass, and re-emit it as longwave radiation at night—directly intensifying the UHI effect.

Q5. The diagram below shows an **ecological energy pyramid** with approximate energy values (in kcal/year) at each trophic level. Study the pyramid and identify the statement that correctly explains both the energy-transfer rule and why the pyramid narrows towards the apex.



Ecological Energy Pyramid (10% Transfer Rule)

(A) Approximately **10%** of the energy at one trophic level is transferred to the next; the remaining ∼90% is dissipated as heat through respiration and metabolic processes. This progressive loss means each higher level can support far less biomass, narrowing the pyramid toward the apex.

(B) Approximately **50%** of the energy passes to the next level; the pyramid narrows because predators at higher trophic levels are physically larger and require more space per individual.

(C) Approximately **90%** of the energy is transferred upward with only 10% lost, which is why producers form the broad base (they need to support a large reserve).

(D) Exactly **1%** of energy transfers at each step; this extreme inefficiency explains why large carnivores have vanishingly small populations and are always endangered.

Q6. Integrated watershed management aims to conserve water, reduce soil erosion, and recharge groundwater across an entire drainage basin. A landscape architect planning watershed treatment works in a semi-arid region must follow an established spatial logic for the sequence of interventions. Which of the following **correctly describes** that sequence and the associated techniques?

(A) Treatment begins at the valley floor and progressively moves up slope (*valley-to-ridge*); retention bunds are constructed first in the stream channel to back-flood lower terraces before work begins on upper catchments.

(B) Interventions are distributed randomly across the watershed using a grid pattern to ensure uniform water harvesting; the sequence of works is determined solely by accessibility and contractor availability.

(C) Treatment follows a *ridge-to-valley* sequence, starting at the watershed divide and working downslope: ridge bunds stabilise the divide, contour bunds and farm bunds slow overland flow on slopes, and check dams in the stream channel arrest sediment and harvest water progressively toward the valley.

(D) A single large dam is constructed at the watershed outlet first; all other interventions—contour bunding, afforestation, check dams—are installed only after the main dam is operational to avoid altering the catchment yield before impoundment.

Q7. The **Noise Pollution (Regulation and Control) Rules, 2000** (amended 2010) notified under the Environment (Protection) Act, 1986, prescribe permissible ambient noise limits for different land-use zones. For a **residential area**, which of the following correctly states the day-time (06:00–22:00 hrs) and night-time (22:00–06:00 hrs) limits in dB(A) L_{eq}?

(A) Day: 65 dB(A) Night: 55 dB(A)

(B) Day: 55 dB(A) Night: 45 dB(A)

(C) Day: 75 dB(A) Night: 70 dB(A)

(D) Day: 50 dB(A) Night: 40 dB(A)

Q8. Wind turbine technology is a key component of renewable energy strategies. Two theoretical and practical aspects of wind power design are the **Betz limit** and the distinction between **horizontal-axis wind turbines (HAWTs)** and **vertical-axis wind turbines (VAWTs)**. Which of the following statements is **correct**?

(A) The Betz limit states that a theoretically perfect wind turbine can extract 100% of the kinetic energy from wind passing through its rotor disc.

(B) The Betz limit is approximately 33.3%; vertical-axis wind turbines consistently exceed this theoretical maximum due to their ability to capture wind from all directions simultaneously.

(C) The Betz limit is 45%; horizontal-axis wind turbines are generally inferior to VAWTs at utility scale because they cannot yaw to face changing wind directions efficiently.

(D) The Betz limit (after Albert Betz, 1919) establishes that no turbine can extract more than approximately **59.3%** of the kinetic energy in the wind. HAWTs dominate utility-scale installations due to higher efficiency, while VAWTs are better suited to turbulent urban and low-wind-speed environments.

Q9. India's **E-Waste (Management) Rules, 2016** (amended 2018, 2022) regulate the management of electrical and electronic equipment (EEE) at end of life. A manufacturer of consumer electronics wishes to understand its legal obligations under these rules. Which of the following **best describes** the core compliance principle applicable to producers?

(A) Under **Extended Producer Responsibility (EPR)**, producers are legally required to establish or authorise collection mechanisms, meet prescribed collection and channelisation targets for their products, and ensure that e-waste reaches registered dismantlers or recyclers.

(B) Under **Centralised Producer Responsibility (CPR)**, the Ministry of Environment, Forest and Climate Change (MoEFCC) collects all e-waste on behalf of producers and invoices them on a per-tonne basis at the end of each financial year.

(C) Under the **Consumer Takeback Initiative (CTI)**, individual consumers are solely responsible for returning end-of-life electronics to the nearest municipal solid waste collection point.

(D) Under **Municipal Extended Liability (MEL)**, all e-waste is managed by Urban Local Bodies (ULBs) who recover costs through a cess levied on electronics retailers within their jurisdiction.

Q10. India's **National Action Plan on Climate Change (NAPCC)**, released in

June 2008, outlines a strategy through eight National Missions for sustainable development while addressing climate change. Which of the following pairs of missions **directly addresses** (i) large-scale deployment of solar energy and (ii) improvement of energy efficiency in energy-intensive industries?

(A) National Mission for a Green India and National Mission for Sustainable Habitat

(B) National Mission for Sustaining the Himalayan Ecosystem and National Mission on Strategic Knowledge for Climate Change

(C) **Jawaharlal Nehru National Solar Mission** (JNNSM) and **National Mission for Enhanced Energy Efficiency** (NMEEE)

(D) National Water Mission and National Mission for Sustainable Agriculture

DETAILED SOLUTIONS

Sol. 1.

Solution

Concept: Vernacular building design is directly shaped by climate. Hot-dry and hot-humid climates demand almost opposite passive strategies because their primary thermal stressors differ.

Step 1 – Hot-dry climate (Building i): In hot-dry regions (e.g. Rajasthan, Gujarat), the main challenge is extreme daytime heat, intense solar radiation, and very low humidity. Thick mud or rammed-earth walls ($\geq$450 mm) provide high thermal mass that absorbs heat during the day and releases it slowly at night (lag effect). Small, recessed openings minimise direct solar penetration. A central courtyard creates a shaded micro-environment: hot air rises and escapes, drawing cooler sub-soil air inward—a natural convection chimney.

Step 2 – Hot-humid climate (Building ii): In hot-humid regions (e.g. Kerala, coastal Odisha), temperature is moderate but humidity is extreme. Raising the floor on stilts keeps occupants above damp ground, reduces insect ingress, and allows air circulation under the floor. Large openings and a permeable envelope maximise cross-ventilation for evaporative cooling. Overhanging verandahs provide shade from both sun and rain while keeping openings unobstructed.

Why other options are wrong:

- **(B)** Incorrectly assigns the raised-floor strategy to hot-dry and claims it promotes solar gain in winter—both are wrong.
- **(C)** The two building types do not use identical strategies; material choice is secondary to spatial configuration.
- **(D)** The courtyard in (i) is a hot-dry feature, not hot-humid. The sloped roof in (ii) sheds tropical rain—it does not indicate a cold-climate application.

Final Answer: Option (A) is correct. Building (i) is the hot-dry vernacular archetype and building (ii) is the hot-humid archetype.

$\boxed{\text{Answer: (A)}}$ Go Back to Q1

Sol. 2.

Solution

Concept: Fly ash is a fine residue collected from the flue gases of coal-fired power plants (an industrial by-product). Fly ash bricks are manufactured by mixing fly ash ($\sim$60–80%), sand/stone dust, gypsum, and lime/cement, then moulding and curing—no kiln firing is required.

Step 1 – Waste utilisation: India generates approximately 230 million tonnes of fly ash per year. Using it in bricks diverts a large fraction from ash ponds and landfills, directly reducing land pollution, ground-water contamination risk, and disposal costs.

Step 2 – Embodied energy comparison: Conventional fired clay bricks require kiln temperatures of $\sim$900–1000 °C, consuming significant fuel (coal, wood, agri-residue). Fly ash bricks are steam-cured or autoclaved at much lower temperatures, drastically lowering process energy and associated CO_2 emissions.

Step 3 – Land degradation: Clay brick manufacturing strips topsoil from agricultural land, permanently reducing its fertility. Fly ash bricks eliminate this demand entirely.

Why other options are wrong:

- **(A)** While fly ash bricks can achieve good compressive strength ($>$7.5 MPa for standard grade), the claim of mortar-free construction is not a standard attribute and is factually incorrect.
- **(B)** Fly ash originates from coal combustion, not from volcanic deposits—it is not a geological renewable resource.
- **(D)** The carbonation reaction in bricks is minimal and does not make the product carbon-negative; this overstates the benefit.

Final Answer: Option (C) is correct. The three core environmental benefits—waste utilisation, no-kiln energy savings, and topsoil protection—are all valid and well-documented.

$\boxed{\text{Answer: (C)}}$ Go Back to Q2

Sol. 3.

Solution

Concept: The Kyoto Protocol (1997, entered into force 2005) established three "flexibility mechanisms" to allow Annex I (developed) countries to meet their emission targets cost-effectively.

Step 1 – Three Mechanisms:

- **Joint Implementation (JI)** (Article 6): Annex I to Annex I country projects; credits are called Emission Reduction Units (ERUs).
- **Clean Development Mechanism (CDM)** (Article 12): Annex I country invests in a project in a *non-Annex I* (developing) country; credits are called Certified Emission Reductions (CERs).
- **Emissions Trading** (Article 17): Trading of Assigned Amount Units (AAUs) between Annex I countries.

Step 2 – Why CDM fits the question: The question specifically states *developing countries* and *certified emission reductions (CERs)*, which uniquely identifies the CDM under Article 12.

Why other options are wrong:

- **(A)** JI involves *two* Annex I countries—not a developed-to-developing-country arrangement.
- **(C)** The EU ETS is a regional cap-and-trade system; it is not a Kyoto Protocol flexibility mechanism per se.
- **(D)** NDCs are voluntary climate pledges under the Paris Agreement (2015), which is a separate framework from the Kyoto Protocol.

Final Answer: Option (B) is correct. The Clean Development Mechanism (CDM) is the Kyoto Protocol instrument matching the described scenario.

Answer: (B) Go Back to Q3

Sol. 4.

Solution

Concept: Albedo (α) is the dimensionless ratio of reflected to incident solar radiation (range 0–1). A high albedo surface reflects most sunlight; a low albedo surface absorbs most of it and converts it to heat.

Step 1 – Urban surface albedo: Cities are characterised by asphalt ($\alpha \approx 0.05$–0.15), dark concrete ($\alpha \approx 0.10$–0.35), and metal roofs—all significantly lower than rural grassland ($\alpha \approx 0.20$–0.25) or forested land ($\alpha \approx 0.10$–0.20). While glass can reflect, most urban glass is at oblique angles and the net urban albedo remains lower than rural surroundings.

Step 2 – Mechanism of UHI intensification: Low-albedo surfaces absorb a greater proportion of incoming shortwave radiation. High thermal-mass materials (asphalt, concrete, brick) store this energy during the day and re-emit it as longwave (infrared) radiation at night, preventing the nocturnal cool-down seen in vegetated areas. This is the primary driver of the nocturnal UHI temperature differential of 2–5 °C commonly measured in Indian cities.

Step 3 – Mitigation: Increasing urban albedo through cool roofs (white/reflective coatings, $\alpha > 0.65$) and cool pavements can reduce surface temperatures by 5–10 °C and ambient UHI intensity by 1–2 °C.

Why other options are wrong:

- **(A)** Urban areas generally have *lower* albedo than rural surroundings; glass curtain walls create glare but the net effect is still lower albedo at the city scale.
- **(B)** Increasing albedo *reduces* UHI by reflecting more shortwave radiation away; it does not intensify UHI.
- **(C)** Low-albedo surfaces *store* heat and release it slowly at night, *sustaining* UHI—they do not reduce nocturnal UHI.

Final Answer: Option (D) is correct. Low-albedo urban surfaces absorb solar radiation, store heat in thermal mass, and release it nocturnally, intensifying the UHI effect.

$\boxed{\text{Answer: (D)}}$ Go Back to Q4

Sol. 5.

Solution

Concept: The **10% Law** (Lindeman, 1942) states that only about 10% of the energy stored at one trophic level is passed on to the next. The remaining $\sim$90% is lost through cellular respiration (as heat), movement, excretion, and in uneaten biomass.

Step 1 – Quantitative check from the diagram:

$$\text{Producers: } 10{,}000 \xrightarrow{\times 0.10} \text{Primary Consumers: } 1{,}000 \xrightarrow{\times 0.10} \text{Secondary: } 100 \xrightarrow{\times 0.10} \text{Apex: } 10$$

Each step is exactly 10% transfer, consistent with Lindeman's rule.

Step 2 – Why the pyramid narrows: Since each successive level receives only 10% of the energy available to the level below, far less biomass (and fewer organisms) can be supported at each higher trophic level. This progressive reduction is what creates the characteristic pyramidal shape.

Step 3 – Ecological implication: This energetic constraint explains why large apex predators (tigers, eagles) exist in much lower numbers than herbivores, and why a plant-based diet has a smaller ecological footprint than a meat-based one.

Why other options are wrong:

- **(B)** A 50% transfer efficiency is far too high; this would require organisms to violate thermodynamic constraints and would produce a much flatter pyramid.
- **(C)** 90% transfer is the inverse of reality; the 10% that is transferred is the usable portion, not 90%.
- **(D)** Exactly 1% transfer is an underestimate; many apex predators are threatened but not solely because of a 1% rule.

Final Answer: Option (A) is correct. The $\sim$10% energy transfer rule explains both the quantitative values in the diagram and the narrowing shape of the trophic pyramid.

$\boxed{\text{Answer: (A)}}$ **Go Back to Q5**

Sol. 6.

Solution

Concept: Watershed management uses an integrated, spatially logical sequence of treatments to slow the movement of water from the point of rainfall to the catchment outlet, maximising in-situ infiltration and groundwater recharge while minimising erosion.

Step 1 – Ridge-to-Valley logic: The standard approach prescribed by the National Watershed Development Project for Rainfed Areas (NWDPRA) and the watershed guidelines of MoRD is **ridge-to-valley**: work starts at the watershed boundary (ridge) and progresses downslope toward the valley. This is because if lower structures (check dams) are built first without upper-slope treatment, the uncontrolled overland flow from untreated slopes quickly fills and damages lower structures with silt.

Step 2 – Typical treatment sequence:

- **Ridge**: staggered trench bunds and ridge bunds to intercept sheet flow at the divide.
- **Upper slope**: contour bunds, field bunds, and agro-forestry to reduce velocity of runoff.
- **Mid-slope**: farm ponds, soak pits, and loose boulder structures.
- **Lower slope and stream**: earthen or stone check dams to harvest water and trap sediment before it reaches the main channel.

Why other options are wrong:

- **(A)** Valley-to-ridge treatment is the *incorrect* sequence; lower-slope bunds built first are quickly undermined by uncontrolled upstream runoff.
- **(B)** Random distribution ignores topography and defeats the purpose of sequential runoff control.
- **(D)** Building a single large dam at the outlet alone does not address on-site soil erosion, groundwater recharge, or equitable water distribution across the watershed.

Final Answer: Option (C) is correct. Ridge-to-valley treatment with contour bunding and progressive check dams is the standard watershed management sequence.

$\boxed{\text{Answer: (C)}}$ Go Back to Q6

Sol. 7.

Solution

Concept: The Noise Pollution (Regulation and Control) Rules, 2000, notified under the Environment (Protection) Act, 1986, define noise standards as L_{eq} (equivalent continuous sound level in dB(A)) for four zone categories.

Step 1 – Prescribed limits (Schedule to the Rules):

Area/Zone	Day (06:00–22:00)	Night (22:00–06:00)
Industrial	75 dB(A)	70 dB(A)
Commercial	65 dB(A)	55 dB(A)
Residential	**55 dB(A)**	**45 dB(A)**
Silence Zone	50 dB(A)	40 dB(A)

Step 2 – Memory tip: The limits decrease by 10 dB(A) from Industrial → Commercial → Residential → Silence zone during the day; the night limit is always 10 dB(A) lower than the day limit within each zone.

Why other options are wrong:

- **(A)** 65/55 dB(A) corresponds to a *commercial* zone, not residential.
- **(C)** 75/70 dB(A) corresponds to an *industrial* zone.
- **(D)** 50/40 dB(A) corresponds to a *silence zone* (hospitals, schools, courts).

Final Answer: Option (B) is correct. Residential areas are permitted 55 dB(A) during the day and 45 dB(A) at night.

Answer: (B) Go Back to Q7

Sol. 8.

Solution

Concept: The Betz limit is a fundamental result in fluid mechanics derived by German physicist Albert Betz in 1919. It establishes the theoretical maximum fraction of kinetic energy that any wind turbine can extract from a free stream of wind.

Step 1 – Derivation basis: If a turbine extracted 100% of wind energy, the air would stop moving—no new air could flow through the rotor disc. If it extracted 0%, the air passes through unchanged. Betz showed that the optimum deceleration ratio (upstream to downstream velocity) is 1/3, giving a maximum power

coefficient:
$$C_{p,\max} = \frac{16}{27} \approx 0.593 = \mathbf{59.3\%}$$
Modern HAWTs achieve C_p of 0.45–0.50 in practice (close to but below the Betz limit).

Step 2 – HAWT vs VAWT:

- **HAWTs** (propeller-type, axis horizontal): Dominate utility-scale wind farms ($\geq$1 MW) because of high efficiency and established technology. They require yaw control to face the wind.
- **VAWTs** (Darrieus, Savonius; axis vertical): Lower efficiency ($C_p \approx 0.20$–0.35), but accept wind from any horizontal direction without yawing. Suited to urban rooftops and turbulent low-wind-speed sites.

Why other options are wrong:

- **(A)** 100% extraction is physically impossible—the Betz derivation proves this.
- **(B)** No real turbine exceeds the Betz limit; VAWTs are typically *less* efficient than HAWTs.
- **(C)** The Betz limit is 59.3%, not 45%; HAWTs are *more* efficient than VAWTs at utility scale.

Final Answer: Option (D) is correct. The Betz limit is ≈59.3%, and HAWTs dominate utility-scale wind power while VAWTs suit urban/low-wind applications.

Answer: (D) Go Back to Q8

Sol. 9.

Solution

Concept: E-waste (electrical and electronic waste) is one of the fastest-growing waste streams globally and contains both toxic substances (lead, mercury, cadmium) and valuable recoverable materials (gold, copper, rare-earth elements). India's E-Waste (Management) Rules, 2016 replaced the earlier 2011 Rules.

Step 1 – Extended Producer Responsibility (EPR): EPR is the cornerstone of the 2016 Rules. It places the legal and financial responsibility for post-consumer collection and safe recycling of EEE on the *producer* (manufacturer/brand owner/importer). Key obligations include:

- Setting up or authorising collection centres and take-back schemes.
- Meeting prescribed collection targets (as a percentage of the number of units put on the market two years prior).
- Ensuring collected e-waste is channelled only to authorised dismantlers/recyclers with valid CPCB authorisation.
- Filing annual returns with the State Pollution Control Board.

Step 2 – Scope of e-waste under the Rules: The Rules cover 48 types of EEE listed in Schedule I (ICT equipment, consumer electronics, large/small appliances, lighting equipment, etc.) and batteries (for small and large equipment).

Why other options are wrong:

- **(B)** There is no "CPR" mechanism; the government does not collect e-waste on behalf of producers.
- **(C)** Consumers have a duty to return, but *producers* are ultimately responsible under EPR—the legal obligation is not placed on consumers.
- **(D)** ULBs are not given responsibility for e-waste management under these rules; this is the domain of producers and registered recyclers.

Final Answer: Option (A) is correct. Extended Producer Responsibility (EPR) obligates producers to set up collection systems and meet channelisation targets under the E-Waste (Management) Rules, 2016.

Answer: (A) Go Back to Q9

Sol. 10.

Solution

Concept: The National Action Plan on Climate Change (NAPCC) was released by the Prime Minister's Council on Climate Change in June 2008. It outlines an overarching national framework through **eight National Missions** that simultaneously advance development and climate goals.

Step 1 – The Eight NAPCC Missions:

1. **Jawaharlal Nehru National Solar Mission (JNNSM)** – scale-up solar energy generation.
2. **National Mission for Enhanced Energy Efficiency (NMEEE)** – energy efficiency in industry (PAT scheme, ECBC enforcement).

3. National Mission for Sustainable Habitat – urban planning, energy efficiency in buildings.
4. National Water Mission – water use efficiency, conservation.
5. National Mission for Sustaining the Himalayan Ecosystem – glaciers, river systems.
6. National Mission for a Green India – afforestation and ecosystem restoration.
7. National Mission for Sustainable Agriculture – climate-resilient agriculture.
8. National Mission on Strategic Knowledge for Climate Change – R&D and knowledge networks.

Step 2 – Matching the question:

- *Large-scale solar energy deployment* $\rightarrow$ JNNSM (Mission 1).
- *Energy efficiency in energy-intensive industries* $\rightarrow$ NMEEE (Mission 2), which introduced the Perform, Achieve and Trade (PAT) scheme for 8 designated consumer sectors.

Why other options are wrong:

- **(A)** Green India + Sustainable Habitat address forests and urban sustainability—neither focuses on solar generation or industrial efficiency.
- **(B)** Himalayan Ecosystem + Strategic Knowledge address cryosphere research and knowledge platforms, not energy.
- **(D)** Water Mission + Sustainable Agriculture address water conservation and farm resilience—not renewable energy or industrial efficiency.

Final Answer: Option (C) is correct. JNNSM addresses solar energy deployment and NMEEE addresses enhanced energy efficiency—the two missions directly relevant to the question.

Answer: (C) Go Back to Q10

ANSWER KEY

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