

Energy Conservation and Green Building (315316)

MSBTE Diploma · K-Scheme · Civil Engineering group, Semester 5 · Important Questions

How this list was made: Based on MSBTE papers **W-2025** and **S-2026** available on msbte.ac.in (these are the only two K-scheme papers of this course so far). All 52 questions of both papers were grouped by topic. **High** = asked in both papers, **Medium** = asked in one paper, **Low** = in the K-scheme syllabus but not asked yet. With only two papers, 'High' simply means 'asked twice'. Practice guidance only — not a prediction of the exam.

Unit-wise marks (K-scheme specification table): Unit I – 8, Unit II – 14, Unit III – 10, Unit IV – 18, Unit V – 20 (total 70).

Topics asked in both papers

#	Topic	Unit	Times asked
1	Principles of green building (incl. application to a residential apartment)	2	3 (S-26, W-25)
2	Energy conservation – definition / objectives / importance	1	2 (S-26, W-25)
3	Salient features of Energy Conservation Act, 2001	1	2 (S-26, W-25)
4	Green building – definition	1	2 (S-26, W-25)
5	Role of green building in sustainable development	1	2 (S-26, W-25)
6	Benefits of green building	2	2 (S-26, W-25)
7	Salient features of green building	2	2 (S-26, W-25)
8	Indoor Environmental Quality (IEQ) – meaning	2	2 (S-26, W-25)
9	Sustainable / green building materials – list	3	2 (S-26, W-25)
10	Characteristics of green building materials (bamboo, hempcrete, ferrock, CLT, recycled plastic lumber)	3	2 (S-26, W-25)
11	HVAC system in green building – role / importance	3	2 (S-26, W-25)
12	Green building audit – definition	4	2 (S-26, W-25)
13	Planning a green building audit – key elements / steps	4	2 (S-26, W-25)
14	Need / importance / benefits of green building audit (school or college)	4	2 (S-26, W-25)
15	GRIHA vs IGBC – comparison	5	2 (S-26, W-25)
16	MNRE – functions / role	5	2 (S-26, W-25)
17	LEED criteria (incl. building operation & maintenance)	5	2 (S-26, W-25)
18	BEE – functions and benefits	5	2 (S-26, W-25)
19	MEDA – role in energy conservation	5	2 (S-26, W-25)
20	Benefits of green rating / certification (college building, long-term sustainability)	5	2 (S-26, W-25)

Unit I – Fundamentals of Green Building and Energy Conservation (8 marks)

Question / topic	Marks	Asked in	Probability
Energy conservation – definition / objectives / importance <ul style="list-style-type: none"> Define Energy Conservation. (W-25 Q.1a) State any two objectives of Energy Conservation. (S-26 Q.1b) 	2 M	S-26, W-25	High
Salient features of Energy Conservation Act, 2001 <ul style="list-style-type: none"> Explain the salient features of Energy Conservation Act-2001. (W-25 Q.2a) Explain any four salient features of the Energy Conservation Act, 2001. (S-26 Q.2d) 	4 M	S-26, W-25	High
Green building – definition <ul style="list-style-type: none"> Define Green Building. (W-25 Q.1b) Define Green Building. (S-26 Q.1a) 	2 M	S-26, W-25	High
Role of green building in sustainable development <ul style="list-style-type: none"> Explain the role of green building in sustainable development. (W-25 Q.2d) Explain the role of green building in sustainable development. (S-26 Q.2a) 	4 M	S-26, W-25	High
Global energy consumption scenario; importance of energy conservation In syllabus, not asked yet — prepare for a surprise question.	—	Not yet	Low
History and evolution of green construction In syllabus, not asked yet — prepare for a surprise question.	—	Not yet	Low
Sustainable construction – environmental, economic and social dimensions In syllabus, not asked yet — prepare for a surprise question.	—	Not yet	Low

Unit II – Green Building Concepts and Sustainable Practices (14 marks)

Question / topic	Marks	Asked in	Probability
Principles of green building (incl. application to a residential apartment) <ul style="list-style-type: none"> State the principles of green building. (W-25 Q.1c) Explain any four principles of green building. (S-26 Q.2b) Explain the principles of green building in design of residential apartment system. (S-26 Q.5a) 	2 M, 4 M, 6 M	S-26, W-25	High
Benefits of green building <ul style="list-style-type: none"> Enlist any two benefits of green building. (W-25 Q.1d) State any two benefits of Green building. (S-26 Q.1c) 	2 M	S-26, W-25	High
Salient features of green building <ul style="list-style-type: none"> Explain salient features of green building. (W-25 Q.2b) State any two salient features of green building. (S-26 Q.1f) 	2 M, 4 M	S-26, W-25	High

Indoor Environmental Quality (IEQ) – meaning <ul style="list-style-type: none"> • Give the meaning of 'Indoor Environmental Quality' (IEQ). (W-25 Q.1f) • Define Indoor environmental Quality (IEQ). (S-26 Q.1d) 	2 M	S-26, W-25	High
Energy efficiency and conservation in green building / ways to improve energy efficiency at home <ul style="list-style-type: none"> • Describe the concept of energy efficiency and conservation in green building. (S-26 Q.3d) • Suggest simple ways to improve energy efficiency at your home. (S-26 Q.5b) 	4 M, 6 M	S-26	Medium
Sustainable site design strategies <ul style="list-style-type: none"> • Explain strategies for the sustainable site design of green building. (W-25 Q.6a) 	6 M	W-25	Medium
Economic considerations – initial cost, long-term benefits, impact on stakeholders <ul style="list-style-type: none"> • Describe the economic impact of green building construction on stakeholders. (W-25 Q.3d) 	4 M	W-25	Medium
Water efficiency and conservation (rainwater harvesting, low-flow fixtures) In syllabus, not asked yet — prepare for a surprise question.	—	Not yet	Low
Materials selection and life cycle analysis (LCA) In syllabus, not asked yet — prepare for a surprise question.	—	Not yet	Low
Future trends in green building In syllabus, not asked yet — prepare for a surprise question.	—	Not yet	Low

Unit III – Sustainable Building Materials and Technologies (10 marks)

Question / topic	Marks	Asked in	Probability
Sustainable / green building materials – list <ul style="list-style-type: none"> • State any four sustainable materials required for green building. (W-25 Q.1e) • Enlist any four green building materials. (S-26 Q.1e) 	2 M	S-26, W-25	High
Characteristics of green building materials (bamboo, hempcrete, ferrock, CLT, recycled plastic lumber) <ul style="list-style-type: none"> • Discuss the characteristics of any four green building materials. (W-25 Q.2c) • Discuss the characteristics of any four green building materials. (S-26 Q.3a) 	4 M	S-26, W-25	High
HVAC system in green building – role / importance <ul style="list-style-type: none"> • Explain the role of HVAC system in green building. (W-25 Q.3a) • Discuss the importance of HVAC system in design and operation of green building. (S-26 Q.2c) 	4 M	S-26, W-25	High

Green roof – meaning and benefits • Explain green roofing and its benefits. (W-25 Q.5c)	6 M	W-25	Medium
Building envelope and its key components (insulation, glazing, air sealing, cool roof) • Explain Building Envelope and state its key components. (S-26 Q.5c)	6 M	S-26	Medium
Building management system (BMS) and energy management In syllabus, not asked yet — prepare for a surprise question.	—	Not yet	Low
Lighting – LEDs and daylighting strategies In syllabus, not asked yet — prepare for a surprise question.	—	Not yet	Low
Criteria for selection of sustainable materials; limitations In syllabus, not asked yet — prepare for a surprise question.	—	Not yet	Low
Ethics and professional responsibility in sustainable design In syllabus, not asked yet — prepare for a surprise question.	—	Not yet	Low

Unit IV – Green Building Audit (18 marks)

Question / topic	Marks	Asked in	Probability
Green building audit – definition • Define the term 'Green Building Audit'. (W-25 Q.1g) • Define the term Green Building Audit. (S-26 Q.1g)	2 M	S-26, W-25	High
Planning a green building audit – key elements / steps • Explain the key elements involved in planning a green building audit. (W-25 Q.3b) • Explain the steps involved in planning an audit for a green building. (S-26 Q.3b)	4 M	S-26, W-25	High
Need / importance / benefits of green building audit (school or college) • List any four major benefits of conducting green building audit. (W-25 Q.3c) • Explain the need for conducting a green building audit in your school or college by applying the concept of sustainability. (S-26 Q.6c)	4 M, 6 M	S-26, W-25	High
Corrective actions and continuous improvement after audit • Suggest any four corrective actions you would recommend after green building audit. (W-25 Q.4a) • Explain strategic implementation for ensuring continuous improvement after a green building audit is completed. (W-25 Q.6c)	4 M, 6 M	W-25	Medium
Audit checklist – design a sample checklist • Design a sample checklist for auditing any green building. (W-25 Q.5b)	6 M	W-25	Medium

Data collection methods during audit • Explain different data collection methods used during a green building audit. (S-26 Q.3c)	4 M	S-26	Medium
Apply audit steps to a building (e.g. local school) – energy efficiency • Apply the steps of green building audit to assess the energy efficiency of a local school building. (S-26 Q.4a)	4 M	S-26	Medium
Audit report – documentation, communicating findings In syllabus, not asked yet — prepare for a surprise question.	—	Not yet	Low

Unit V – Green Building Standards and Certification Systems (20 marks)

Question / topic	Marks	Asked in	Probability
GRIHA vs IGBC – comparison • Differentiate between GRIHA and IGBC rating system of green building. (W-25 Q.4c) • Differentiate between GRIHA and IGBC rating system on basis of: original development, rating validity, certification levels, area of assessment. (S-26 Q.4b)	4 M	S-26, W-25	High
MNRE – functions / role • State the functions of Government organisation MNRE. (W-25 Q.4b) • Explain the role of Ministry of New and Renewable Energy (MNRE). (S-26 Q.4c)	4 M	S-26, W-25	High
LEED criteria (incl. building operation & maintenance) • Explain LEED criteria for building operation and maintenance. (W-25 Q.4d) • Discuss the LEED criterias for green building certification. (S-26 Q.4d)	4 M	S-26, W-25	High
BEE – functions and benefits • Explain the functions of BEE in detail. (W-25 Q.4e) • Explain the functions of Bureau of Energy Efficiency (BEE) and state its benefits in energy efficiency. (S-26 Q.6a)	4 M, 6 M	S-26, W-25	High
MEDA – role in energy conservation • Explain the role of MEDA in energy conservation in the city. (W-25 Q.6b) • Explain the role of MEDA in energy conservation. (S-26 Q.4e)	4 M, 6 M	S-26, W-25	High
Benefits of green rating / certification (college building, long-term sustainability) • Explain the benefits to the college after getting IGBC green rating certification for college building. (W-25 Q.5a) • Explain how the rating systems of green building contribute to long term sustainability of building. (S-26 Q.6b)	6 M	S-26, W-25	High

GRIHA – salient features and evaluation criteria In syllabus, not asked yet — prepare for a surprise question.	—	Not yet	Low
IGBC – salient features and evaluation criteria In syllabus, not asked yet — prepare for a surprise question.	—	Not yet	Low

Exam tips from the two papers

- The paper is fully **theory** — no numerical was asked in W-2025 or S-2026. Our model papers include a few small calculations (EPI, LED payback, rainwater harvesting, solar PV size) only as practice for application questions.
- Q.1 (2-mark definitions) was almost the same in both papers: green building, energy conservation, IEQ, green building materials, green building audit, benefits/features.
- **Unit V organisations** came every time: MNRE, BEE, MEDA, GRIHA vs IGBC, LEED — learn 4–6 points for each.
- ‘Characteristics of four green building materials’ and ‘role of green building in sustainable development’ were asked in exactly the same words in both papers.
- Application questions (A-level) relate a topic to **your school / college / home** — e.g. audit of a school, benefits of IGBC rating to a college, energy saving at home. Write points suited to that building.
- Sketches that help: green building features, audit flow chart, building envelope, green roof layers, HVAC schematic, rating-level charts.
- Facts like rating validity, point ranges and scheme names change — quote them as ‘usually / as per current version’.

Note: This is a **important-question list prepared by Ananda Technologies** only for practice and exam preparation, based on the pattern of previous MSBTE question papers and the K-scheme syllabus. It is **not an official MSBTE paper**, and it does **not** mean that these questions will come in the exam. Answers follow standard textbook points; marks shown are indicative. Free for students — anandatechnologies.in