



KAMALDNP

kamaldnp.com • IT Training, Varanasi

PDF created by Raj Kamal using AI

Model Practice Paper — Environmental Sciences

BTEUP Diploma • 1st Semester (First Year — Common Curriculum, All 41 Branches)

Session 2026-27

Practice Questions / Model Paper — NOT a BTEUP board paper

Time: 2.30 Hours

Max. Marks: 60

General Instructions:

- All questions are compulsory. Each question has three parts (a), (b) and (c) — **answer any two** of the three parts in every question.
- Each part carries 6 marks; each question carries 12 marks.
- Draw neat, labelled diagrams wherever they are asked or wherever they support your answer.
- Write your answers in your own words, in the same order as the questions.

About this paper: This is an original practice (model) paper prepared by KAMALDNP Academy from the official BTEUP 2026-27 syllabus topics for this subject. It is NOT a BTEUP board paper, and no question in it is promised to appear in your examination. Its structure follows the board's last published paper pattern (5 questions, each with three parts of which any two are to be answered), scaled to this subject's theory maximum of 60 marks (external) in the verified 2026-27 scheme; the printed time follows the same last published pattern. The 2026-27 scheme's own paper format has not been published yet — when your board paper is in your hand, its printed instructions govern. Note: Environmental Sciences is a qualifying (audit) subject in the scheme — you must appear and pass, but its marks are not counted in your percentage or division.

Q1. (From: Environment & Ecosystems) — Answer any two of the following:

- (a) What is an ecosystem? Describe its biotic and abiotic components with one example, and support your answer with a simple labelled diagram of an ecosystem. (6)
- (b) Write a brief note on biodiversity. State what it means, the levels at which variety is found, and why biodiversity is important. (6)
- (c) What are natural resources? Differentiate between renewable and non-renewable resources with two examples of each, and state why conservation of resources is necessary. (6)

Q2. (From: Pollution) — Answer any two of the following:

- (a) Discuss air pollution under the following heads: its main causes, its effects, and the measures to control it. (6)
- (b) Discuss water pollution under the following heads: its main causes, its effects, and the measures to control it. (6)
- (c) Write short notes on the following, covering causes, effects and control measures for each: (i) soil pollution, and (ii) noise pollution. (6)

Q3. (From: Sustainability & Green Energy) — Answer any two of the following:

- (a) Explain what is meant by sustainable development. Why is it necessary in the present time? (6)
- (b) Describe briefly solar energy as a renewable source of energy. State its main uses, advantages and limitations. (6)
- (c) Describe briefly wind energy and hydro energy as renewable sources of energy. State one advantage and one limitation of each. (6)

Q4. (From: Environmental Laws & Responsibility) — Answer any two of the following:

- (a) Write a brief note on environmental laws in India. Keep your answer general: state their purpose, mention the Environment (Protection) Act, 1986 as an umbrella law, and state in general terms that separate laws and rules exist for areas such as air, water and wastes. (6)
- (b) Describe the role of an engineer in protecting the environment at his or her workplace. (6)
- (c) Explain how an engineer or technician can fulfil his or her environmental responsibility in day-to-day practical work. Give suitable examples. (6)

Q5. (From: Pollution + Sustainability & Green Energy (mixed)) — Answer any two of the following:

- (a) Explain how greater use of renewable energy sources such as solar, wind and hydro power helps in reducing air pollution. Give suitable examples. (6)
- (b) Write a short note on the control measures that an educational institution or a small town should adopt to keep its surroundings free from pollution. Use sustainable practices in your answer. (6)
- (c) Explain the practices of reduce, reuse and recycle with one example of each. How do these practices together help in controlling pollution and saving natural resources? (6)

Model Answer Outline — Environmental Sciences

The key points a full-marks answer contains, question by question.

Practice Questions / Model Paper — NOT a BTEUP board paper

Q1(a)

- Ecosystem: the natural system formed by living organisms and their non-living surroundings in an area, working together as one unit, e.g. a pond or a forest
- Biotic (living) components: producers (green plants), consumers (animals) and decomposers (bacteria and fungi)
- Abiotic (non-living) components: sunlight, air, water, soil, temperature and minerals
- Working: plants make food using sunlight, animals depend on plants and other animals for food, and decomposers return nutrients to the soil when organisms die — so energy flows and materials cycle; a simple labelled diagram of a pond or forest ecosystem earns the diagram marks

Q1(b)

- Biodiversity means the variety of living things — plants, animals and micro-organisms — found in an area or on the earth as a whole
- It covers variety at different levels in brief: variety of species, variety within a species, and variety of ecosystems such as forests, rivers and deserts
- Importance: it keeps ecosystems balanced and working, and provides food, medicines, raw materials and clean air and water
- Threats in brief: cutting of forests, pollution, over-use of resources and destruction of natural habitats, so protection of biodiversity is necessary

Q1(c)

- Natural resources are the useful things we get from nature, such as water, forests, soil, minerals, coal, petroleum and sunlight
- Renewable resources: can be replaced naturally in a short time and do not finish if used carefully, e.g. sunlight, wind, water and forests
- Non-renewable resources: formed over a very long time and finish once used up, e.g. coal, petroleum and minerals
- Need for conservation: use resources carefully and avoid waste, so that they last long and remain available for future generations

Q2(a)

- Causes: smoke and gases from vehicles, factories and power plants burning coal and petroleum; burning of garbage and crop waste in the open
- Effects on health: breathing trouble, cough, asthma and eye irritation; effects on surroundings: smog in cities, acid rain and damage to crops and buildings

- Control measures: use of cleaner fuels and public transport, fitting filters and chimneys of proper height in factories, and regular checking (pollution testing) of vehicles
- Control (personal and social level): plant and protect trees, avoid open burning of waste, and keep vehicles properly maintained

Q2(b)

- Causes: sewage and dirty water from homes and towns flowing into rivers and ponds, industrial waste water, washing and bathing near water sources, and excessive fertilisers and pesticides washing off fields
- Effects: drinking water becomes unsafe and water diseases such as cholera, typhoid and jaundice spread; aquatic plants and animals die and the water becomes unfit for use
- Control measures: treat sewage and industrial waste water before releasing it into water bodies, and do not throw garbage into rivers and ponds
- Control (contd.): use fertilisers and pesticides only as needed, keep water sources clean and protected, and save and use water carefully

Q2(c)

- Soil pollution — causes: excessive chemical fertilisers and pesticides, dumping of solid waste, plastics and industrial waste on land
- Soil pollution — effects and control: soil loses fertility and harmful chemicals can enter crops and groundwater; control by proper waste disposal, reduced chemical use and not dumping plastics and harmful waste on open land
- Noise pollution — causes: vehicle horns and traffic, loudspeakers, factory machines and construction work
- Noise pollution — effects and control: hearing trouble, headache, disturbed sleep and loss of concentration; control by silencers on machines and vehicles, limits on horn and loudspeaker use, and planting trees along roads

Q3(a)

- Meaning: development that meets the needs of the present generation without reducing the ability of future generations to meet their own needs
- Resources such as coal, petroleum, water and forests are limited, so they must be used carefully and not wasted
- Balance: development, industry and a better life are needed, but not at the cost of destroying air, water, soil and forests
- Practical meaning in brief: save energy and water, reduce pollution and waste, recycle materials, and use renewable resources wherever possible

Q3(b)

- Solar energy is the heat and light received from the sun, a renewable and freely available source that does not finish
- Uses: solar water heaters, solar cookers, solar lanterns and lamps, and solar panels (solar cells) that produce electricity

- Advantages: no fuel cost, no smoke or pollution during use, and sunlight is available almost everywhere
- Limitations in brief: not available at night and reduced on cloudy days, and the starting cost of panels and equipment is high

Q3(c)

- Wind energy: moving air turns the blades of a windmill or wind turbine, and the turbine produces electricity; used earlier also for pumping water
- Wind energy — advantages and limits: clean and renewable with no fuel cost, but it works only where and when the wind blows with enough speed
- Hydro energy: falling or flowing water of rivers, stored behind a dam, turns a turbine to produce electricity (hydroelectric power)
- Hydro energy — advantages and limits: clean, renewable and the dam also stores water for irrigation, but building a large dam costs a lot and affects the land and people of that area

Q4(a)

- Purpose in brief: environmental laws are made to protect air, water, soil, forests and public health by fixing duties and limits for industries, institutions and citizens
- The Environment (Protection) Act, 1986 exists as an umbrella law — a broad, overall law under which rules can be made for the protection of the environment as a whole
- Apart from the umbrella law, there are separate laws and rules for different areas, such as control of air pollution, control of water pollution and handling of wastes, in general terms
- In short: these laws require projects and industries to control pollution, take permissions where required, and follow the standards fixed for them — write only this general level, without quoting detailed provisions

Q4(b)

- Design and select processes, machines and materials that create less pollution and less waste, and that use less energy and water
- Ensure that waste water, smoke and solid waste from the workplace are properly treated or disposed of, as per the applicable rules, and report any leakage or fault at once
- Save resources in daily work: avoid wastage of electricity, water, fuel and materials, and support recycling and reuse in the unit
- Create awareness: follow safe and clean working practices himself or herself, guide co-workers, take part in tree plantation and cleanliness drives, and suggest greener methods to the management

Q4(c)

- Start from his or her own work area: keep it clean, do not throw waste in the open or into drains, and put different types of waste in the proper bins or places fixed for them
- Handle oils, chemicals and other harmful materials carefully so that they do not spill into soil or water, and inform the supervisor if a spill or leakage happens
- Use machines and vehicles properly: regular maintenance, switching off engines, lights and machines when not in use, and avoiding unnecessary noise

- Support the unit's environmental duties in small practical ways: save paper and materials, plant and protect trees in the campus or factory area, and encourage others to follow the same habits

Q5(a)

- Vehicles, factories and power plants burning coal and petroleum are major sources of smoke and harmful gases in the air
- Solar panels, wind turbines and hydro power produce electricity without burning fuel, so they do not release smoke and harmful gases during use
- Greater use of these renewable sources reduces the burning of coal and petroleum, and therefore reduces air pollution and the load on limited fuel stocks
- Suitable examples earn marks: solar street lights, solar water heaters in hostels and homes, wind power in windy areas, and hydro power from dams

Q5(b)

- Treat waste properly: set up dustbins and separate dry and wet waste, treat waste water before release, and do not allow open burning of garbage
- Save energy and water: use efficient lights and machines, switch off when not in use, repair leaking taps, and use solar water heaters or solar lights where possible
- Keep the surroundings green and clean: plant trees in and around the campus, protect them, and keep drains and open areas free of dumped waste
- Build habits: regular cleanliness drives, pollution checking of vehicles, and awareness among students and residents so the measures continue daily

Q5(c)

- Reduce: use only what is needed — less paper, water, electricity and fuel means less waste and less pollution to begin with
- Reuse: use materials again where safe and possible, e.g. using the other side of paper, refilling containers, and reusing treated water for gardening
- Recycle: send paper, metal, glass and plastic waste for recycling, so new raw material and energy are saved
- Overall effect with an example: these simple practices together cut the amount of garbage dumped, save natural resources, reduce pollution of air, water and soil, and save money — e.g. a hostel that separates waste, recycles paper and uses solar heaters creates far less pollution than one that dumps and burns all its waste

KAMALDNP • kamaldnp.com • support@kamaldnp.com • +91 8318013442 • Varanasi, UP
Prepared by KAMALDNP Academy from the official BTEUP 2026-27 syllabus. This is a practice/model paper only.